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Late-stage grammatical change in Chinese:

A constructional account

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Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where stated otherwise by reference or acknowledgment, the work presented is entirely my own.

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Abstract

This thesis is a diachronic constructional exploration into late-stage grammatical change, defined as the creation of new grammatical constructions out of pre-existing grammatical ones, in Chinese. It argues that a multidimensional, constructional view on directionality in change, be it early or late stage, has advantages over a linear or unidirectional model, typical of the grammaticalisation approach.

Chapters 1–3 lay down the groundwork for subsequent ones. Chapter 1 presents data and methodology. Chapter 2 discusses diachronic construction grammar, particularly the constructionalisation framework by Traugott & Trousdale (2013), and grammaticalisation. Chapter 3 introduces secondary grammaticalisation, which models late-stage grammatical change and assumes unidirectionality (that grammatical development proceeds in a highly contrained fashion) in the tradition of grammaticalisation, and evaluates its status within the constructionalisation framework.

Chapters 4–7 constitute the major descriptive and analytical components of this thesis and propose three major generalisations. Chapters 4–5 show that modal and conditional constructions can develop into each other, manifesting bidirectionality rather than unidirectionality, both within and beyond Chinese. A prediction for bidirectionality is proposed: 'the performative bidirectionality prediction', which incorporates semanticisation via invited inferencing in the Invited Inferencing Theory of Semantic Change and diachronic construction grammar, and requires no special late-stage process such as secondary grammaticalisation or degrammaticalisation.

Chapter 6 models a category change from quantifier to classifier as 'realignment', or change in inheritance links from one schema to another. Following realignment, multiple classifier constructions were created, one of which is contentful. Implicating constructions at different levels, the changes cannot be easily

accounted for within a unidirectional model. Furthermore, a 'typology of reinforcement' in historical linguistics is proposed to predict similar kinds of change.

Chapter 7 examines schema loss, using as an example an adverbial adjunct schema with the paraphrase 'something adverse almost happened'. A 'prototypicality-based' account of schema loss is posited, which parallels schema formation and involves different degrees of schematicity.

Chapter 8 concludes by proposing that any regularity in language change is to be found in processes of change from a multidimensional, construction-specific perspective.

Lay Summary

Aiming to explain language change, historical linguists ask questions such as: what kinds of change are more common or uncommon? What do we know about language in general that can explain why certain changes are more common or uncommon? Conversely, what do we know about language change that can inform us about what language is and how it works?

Some interesting hypotheses have been proposed to account for regularity in language change, among which the 'unidirectionality' hypothesis stands out especially, for the strong prediction it makes. It hypothesises that lexical expressions (e.g. nouns and verbs) develop into grammatical ones (e.g. *a* and *the*), which is known as 'grammaticalisation', but change rarely proceeds in the opposite direction, from grammatical to lexical expressions.

Recently, some linguists have proposed the notion of 'secondary grammaticalisation' to capture processes of change that create new grammatical expressions out of pre-existing grammatical expressions. This type of change is referred to as 'late-stage in the thesis, in the sense that it is later than the change from lexical to grammatical expressions. Secondary grammaticalisation is a powerful proposal because it suggests that we can predict what kinds of change are more likely to happen when an expression is at a certain stage of its development.

However, this thesis argues that neither the unidirectionality hypothesis, nor secondary grammaticalisation significantly advances our understanding of language change. Instead, it demonstrates that there are 'bidirectionality' and other phenomena that cannot be simplistically described as either unidirectional or secondary grammaticalisation. Evidence comes from four kinds of change in the history of the Chinese language: bidirectional developments between modal auxiliaries (equivalent to *must*) and connectives (equivalent to o*nly if* and *unless*), the evolution of a quantifying expression (similar to *some*) and the death of a category of adverbial expressions (which means 'was/were in danger of doing something').

In lieu of a linear view on language change, inherent in unidirectionality and secondary grammaticalisation, this thesis proposes explanations that model change from a multidimensional perspective, in a theory of language known as diachronic construction grammar. It shows that change happens within a family or network of related expressions and may reconfigure their structures in ways that are not unidirectional.

Finally, this thesis suggests how the proposed explanations may be applied to other languages and how historical linguistics can build on insights from diachronic construction grammar to move forward.

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As alienating as writing 300-strong pages of linguistic analysis at home may be (especially in the midst of a pandemic), I have found the whole experience communal in some sense: reading, writing and thinking about what others have said about language is like engaging in a discussion with the community of linguists.

This discussion, which occurred predominantly in my own head, would not have been possible without any actual interaction with the many people I learned from and bounced ideas off. My supervisors, Profs. Graeme Trousdale and Nikolas Gisborne guided me through the vast literature, as well as my very often confused thinking and even more convoluted writing (especially Graeme, who also supervised my dissertation). Thanks to them, this thesis has not turned out to be as insurmountable a task as I had feared. I was also extremely fortunate to have Prof. Elizabeth C. Traugott and Dr. Robert Truswell as my examiners, whose expert advice has not only improved the thesis significantly, but also inspired me to read more closely, write more clearly and think more critically about linguistics. I have learned so much from my supervisors and examiners that they have helped me shaped my academic sense of self, for which I will always be grateful.

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Abbreviations

1PS	first person
2PS	second person
2SG	second person singular
3PS	third person
3SG	third person singular
AA	adverse avertive
ACC	accusative
ASP	aspect
BA	BA construction (Li & Thompson 1981: Ch. 15)
CL	classifier
COMP	complementiser
CON	conditional
CONJ	conjunctive
DEM	demonstrative
DIM	diminutive
INF	infinitive
IMPL	implicative
IPFV	imperfective
LOC	locative
NEG	negation
NOM	nominative
NP	noun phrase
OBJ	object
OBL	oblique
PASS	passive
PFV	perfective
PL	plural
POS	possessive
PRAG	pragmatics
PTCL	particle
PURP	purposive
QNT	quantifier
RDP	reduplication
REFL	reflexive
SBJV	subjunctive
SEM	semantics
SUBJ	subject
SUSP	suspective
SYN	syntax
VP	verb phrase

Chapter 1

Introduction

1.1 Aims

This thesis is a diachronic constructional exploration into some late-stage grammatical developments, defined as the creation of new grammatical constructions out of pre-existing grammatical ones, in Chinese. It has two overarching goals. First, it explores the role of late-stage grammatical change in theory of language change, by asking how it can be modelled and whether there are special late-stage processes that are distinct from early-stage ones. Second, it examines whether previous predictions in grammaticalisation studies about unidirectionality can be maintained, as far as the data considered here are concerned, and how cases that do not exhibit unidirectionality can be accounted for.

The thesis argues that, first, late-stage grammatical change is accounted for by the same processes that apply to early-stage grammatical change. Therefore, there is no basis for the concept of 'secondary grammaticalisation', which is specifically proposed to model late-stage change and claimed to be characterised by a unique set of processes. Second, instead of unidirectionality, a more fine-grained, multidimensional view on 'directionality' in grammatical change is required to account for the interaction of constructions at different levels of schematicity, whether it involves grammaticalisation or not. These arguments are formulated in the framework of constructionalisation (Traugott & Trousdale 2013), where language is viewed as a network of constructions of varying degrees of complexity. Moreover, alongside the arguments, three major generalisations are proposed here: a prediction about bidirectional developments (Chs. 4–5), a typology of reinforcement (Ch. 6), and a prototypicality-based account of obsolescence (Ch. 7).

This thesis makes several contributions to historical linguistics and especially the literature of diachronic construction grammar (Traugott & Trousdale 2013; Hilpert 2013, 2015; Barðdal et al. 2015). First, it shows that late-stage grammatical change can be accounted for in the same way as early-stage grammatical change. Second, it shows that the constructionalisation framework can not only complement the grammaticalisation approach, but also model in a principled manner a wider range of phenomena that lie outside the scope of unidirectionality-based grammaticalisation (e.g. bidirectional developments, degrammaticalisation and obsolescence). Third, it extends the range of construction types in Chinese investigated in diachronic construction grammar, by considering modal, conditional, classifier constructions and a family of adverbial constructions (for other diachronic constructional studies of Chinese, see Bisang 2010; Zhan & Traugott 2015, 2019; Chen 2017). Forth, the three generalisations proposed in the thesis can be applied to more languages and construction types.

This introductory section is organised as follows. §1.2 introduces the intellectual background of the thesis. §1.3 discusses the periodisation of Chinese and data and methodology used in the thesis. §1.4 outlines the structure of the thesis.

1.2 Background

This thesis mainly engages with two traditions of historical linguistic research: diachronic construction grammar and grammaticalisation. It attempts to account for, in a diachronic constructional framework, some instances of 'late-stage grammatical change' in Chinese (defined as the creation of grammatical constructions out of pre-existing grammatical ones), while evaluating claims from the tradition of grammaticalisation such as 'secondary grammaticalisation' and 'unidirectionality'.

Some working in the tradition of grammaticalisation have proposed that 'secondary grammaticalisation', which takes place later than 'primary grammaticalisation', is associated with special processes of change and can predict

late-stage grammatical change. Grammaticalisation studies have been preoccupied with finding regularity in change, typically under the heading of 'unidirectionality', which hypothesises that change proceeds from a less grammatical category to a more grammatical one. This kind of change is usually represented linearly as 'pathways' or 'clines'. Therefore, 'secondary grammaticalisation' as a descriptive as well as theoretical notion is interesting, because it may enable different ways of capturing regularity. Dividing grammatical change into different types in terms of grammaticality may allow us to make more specific predictions about what kind of change is more common or plausible when an expression is at a certain stage of grammaticality.

There is already some critical engagement with 'secondary grammaticalisation' (see Ch. 3). However, most practitioners of diachronic construction grammar have not paid any special attention to it, or late-stage grammatical change in general, with Smirnova (2015a) being a notable exception. Diachronic construction grammar has had an intimate history with grammaticalisation ever since its conception (see reviews by Traugott & Trousdale 2013; Barðdal & Gildea 2015; Noël 2017). Therefore, it is of interest to practitioners of diachronic construction grammar to assess how the notion of 'secondary grammaticalisation' can be interpreted in diachronic construction grammar.

The enquiry into the theoretical status of 'secondary grammaticalisation' and how to model late-stage grammatical change in a constructional framework forms one of the primary motivations behind this thesis. What can 'secondary grammaticalisation' contribute to our understanding of late-stage grammatical change? Can it help us to predict certain processes of change that grammatical constructions go through? More detailed arguments for and against 'secondary grammaticalisation' will be presented. For now, a short answer is as follows: 'secondary grammaticalisation' is of little theoretical value because it does not help explain change or make predictions about it. Moreover, secondary grammaticalisation is not qualitatitively different from grammaticalisation in general, because no empirical data suggest that there is any process that can be

used by the linguist to uniquely distinguish the former from the latter. Therefore, secondary grammaticalisation is likely not a viable concept for any theory of change. In fact, not even the notion of 'unidirectionality' can precisely predict pathways of change that the data examined here exhibit. Instead, it is proposed that diachronic construction grammar can capture late-stage grammatical change more precisely than the grammaticalisation framework. Late-stage grammatical change is accounted for by the same processes that happen to early-stage change from a constructional perspective, which improves understandings of 'directionality' in change, one of the most important generalisations that historical linguists aim to uncover.

The terms 'secondary grammaticalisation' and 'late-stage grammatical 'change' supposedly characterise changes to grammatical constructions in all grammatical domains. However, careful analyses of all grammatical phenomena cannot be attempted within a thesis. Therefore, only four topics, or in grammaticalisation terms, 'pathways' have been chosen: 'modal > conditional' (Ch. 4), 'conditional > modal' (Ch. 5), 'quantifier > classifier' (Ch. 6) and loss of a grammatical schema (Ch. 7). The starting points of the pathways are representative of products of grammaticalisation. Modal auxiliaries are often cited as examples of grammaticalisation (e.g. Hopper & Traugott 2003; Heine & Kuteva 2002; Kuteva et al. 2019). Conditional connectives in most syntactic theories that assume hierarchical structures are at clause periphery, 'higher' than many other grammatical categories such as tense and aspect (e.g. van Valin & LaPolla 1997; Dik 1997; Cinque 1999). Diachronic studies in such theories therefore typically propose that conditional connectives are the results of grammaticalisation from lower grammatical categories. Classifiers are often cited as one of the rare morphosyntactic categories that are obligatory and agreement-like in Chinese (Sun 2006; Packard 2000:75, 130), thus excellent examples of results of grammaticalisation. Change that a modal, conditional connective or classifier undergoes therefore is relevant to historical linguists interested in 'secondary grammaticalisation': such expressions are grammatical and their further

developments are late-stage. Finally, loss of a grammatical schema also qualifies as 'late-stage' and may be part of a secondary grammaticalisation process, as it is the 'logical' endpoint of a grammaticalisation process.

Most analyses of these developments are based on data from the history of Chinese, whose periodisation is introduced below, along with the data sources and methodology used in the thesis.

1.3 Periodisation of Chinese

This section presents general information about the periodisation of Chinese. More specifics will be described in individual chapters.

As with any periodisation, periodisation of Chinese is not uncontroversial (Norman 1988; Peyraube 1996). However, there are two periodisations commonly used in Chinese linguistics. The first one is dynasty-based (therefore focusing more on language-external criteria) and includes up to fifteen dynastic periods. In addition to its origin in the philological tradition, this periodisation has its language-internal basis in the fact that change in dynasty is often correlated with major social and political upheavals, including large-scale migration, all of which may lead to linguistic change. The second periodisation, which is more language-internal, divides Chinese into four periods based on linguistic innovations (see Wei 2000; 2003): Old Chinese, Middle Chinese, Early Mandarin Chinese and Modern Chinese (henceforth PDC, for Present-Day Chinese). These four stages of Chinese may coincide with change in dynasty. The following table, based on Chen (2017), summarises the pre-PDC periods, which forms the basis of periodisation for the Sinica Corpora (see below).

Old Chinese	8–1c. B.C.
Middle Chinese	1–6 c. A.D.
Early Mandarin Chinese	7 – 19 c. A.D.

Table 1.1 Periodisation of Chinese

As will be introduced below, each of the two main sets of corpora used adopts one of the periodisations. The bulk of the thesis deals with data from Early Mandarin Chinese and PDC, but sometimes when neither periodisation is fine-grained enough, estimated dates of composition, or authors' dates of birth and death will be included instead.

Continuity between Old Chinese and Mandarin is assumed here, following general scholarship (e.g. Chao 1968; Norman 1988; Sun 2006; Zhan & Traugott 2015, 2019). Despite the typological diversity of the Sinitic family (which is greater than previously thought; see the volume edited by Chappell 2015, contra Chao 1968), the written language, often labelled as *wényénwén* 'Literary Chinese', has adhered more or less to the same, evolving linguistic entity, until relatively recently, in the early 20th century, when language reform started minimising the discrepancy between written and spoken Chinese/Mandarin (see Sun 2006: Ch. 1 for the historical background). This thesis contains data from some of the earliest literature as well as very recent data culled from the web. Therefore, to maintain terminological consistency, most phenomena and data considered here are labelled indiscriminately as 'Chinese', instead of 'Mandarin'. This hopefully will not cause any confusion. 'Chinese' can very often be interpreted narrowly as 'Mandarin (Chinese)', unless stated otherwise. Old Chinese is typically assumed to be the ultimate source of all modern varieties of Chinese, including Mandarin. However, there is much synchronic variation on classifiers across the Sinitic family (e.g. Li & Bisang 2012; Jian 2015), therefore it should be kept in mind that all descriptions and analyses presented in Ch. 6, which concerns classifiers, pertain to Mandarin only.

1.4 Corpora, reference sources and methodology

Most data used in this thesis were drawn from two sets of digital diachronic corpora of Chinese, unless taken from previous studies or the web (however, there are only a few cases from the web). The first was created by the Centre of Chinese Linguistics at Peking University, and will be referred to as the CCL Corpus; the

second one was built by Academia Sinica, Taipei, referred to henceforth as the Sinica corpus/corpora. They are introduced in more detail below.

1.4.1 The CCL Corpus

The CCL Corpus is divided into two main sections: *gǔdài* ('ancient'; up until 1949) and *xiàndài* ('modern'; from 1949 on). The 'ancient' section is dynasty-based. Most data drawn from the CCL Corpus come from this section, subdivided into 15 dynastic periods, from the *Zhoū* dynasty (ca. 11th century BC – 256 BC) to *Mínguó* ('republic', referring to the Republic of China, established in 1912), until 1949, when the communist People's Republic of China overthrew the Republic of China. The CCL Corpus was used for mostly qualitatitive purposes. Most data from it were manually parsed and examined.

A Chinese word can be represented by more than one character and word boundares typically are not represented in the writing system. Therefore, given a database of Chinese characters that are not segmented into words, the most straightforward way of measuring its size is to use its character count. The CCL Corpus is not tagged or segmented into words. Therefore, its size will be described by the number of characters. The 'ancient' and 'modern' sections contain respectively, 201 million and 581 million characters.

1.4.2 The Sinica Corpora

The Sinica Corpora are four individual corpora that contain texts in Old Chinese, Middle Chinese, Early Mandarin Chinese and PDC (see Table 1.1). The periodisation follows the language-internal criteria proposed by Wei (2000, 2003).

All of the Sinica corpora are fully segmented into words and tagged for parts of speech by the same tagging system, with some minor differences in detail. With only 17.6 million characters in the PDC Corpus and 61.6 million characters in the pre-PDC ones, the Sinica corpora are considerably smaller than the CCL Corpus. However, as they are fully tagged and contain much fewer errors and noises (e.g. repetitions and non-orthographic characters) than the CCL corpus, the Sinica

corpora were used for mostly quantitative purposes that prioritise fast, automatic retrievals.

1.4.3 Additional reference sources used

The additional corpora used were the Chinese Text Project and the Scrita Sinica. These two databases are two of the largest digital corpora available: they respectively contain five billion and 700 million characters. However, they were designed for sinological studies, such as history and philosophy, not for linguistic research and are not tagged for parts of speech. For example, the Chinese Text Project focuses on philosophical texts and does not include genres that are more reflective of the spoken language such as drama and Buddhist texts (Sun 2006: 17). The Scrita Sinica Database is organized into the four genres that are the most valued in the philological tradition native to the Chinese culture: *jīng* 'Confucius classics', *shǐ* 'histories', *zǐ* 'philosophical treatises' and *jí* 'literature anthologies'. However, many texts contain passages that are direct quotes from earlier sources, which are not always explicitly marked in the Scrita Sinica Database, and many important works of fiction, especially novels that are more colloquial in style, are not included. Therefore, these two corpora were not used as the primary sources of data.

Their in-built historical dictionaries, however, were consulted whenever there was any difficulty with interpreting the data extracted. In addition, texts in the Scripta Sinica Database often have in-text glossaries and commentaries by pre-modern scholars, which helped with interpretation greatly. However, the dictionaries, glossaries and commentaries typically use pre-PDC language that can appear quite obscure to the modern reader. For this reason, the Taiwan Ministry of Education Dictionary was also consulted when necessary. Furthermore, most data from the CCL Corpus are represented in Simplified Chinese characters, while data in the Sinica Corpora are exclusively coded in Traditional Chinese characters. The Dictionary of Chinese Character Variants by the Taiwan Ministry of Education and the International Encoded Han character and Variants Database, created by

Academia Sinica, were also consulted, whenever there was any discrepancy between characters that might impede accurate comprehension. All data are represented using Traditional Chinese characters. Finally, both the Chinese Text Project and Scripta Sinica contain information about dates of composition and form the basis of text dating in many instances.

1.4.4 Methodology

The methodology is mostly qualitative, especially in Chs. 4–5: careful reading of the data extracted was conducted, with special attention paid to the specific communicative context. However, to support qualitative observations and analyses, most chapters have quantitative data such as frequency counts, and Chs. 4 and 6 use respectively Fischer's exact tests (as employed in the version of collostructional analysis by Stefanowitsch & Gries 2003) and Chi-squared tests.

1.5 Structure of the thesis

Ch. 2 outlines aspects of diachronic construction grammar and grammaticalisation that are relevant to subsequent chapters. Ch. 3 critically evaluates the notion of 'secondary grammaticalisation' from grammaticalisation studies, a prominent research tradition that has sparked interest in late-stage grammatical change. Chs. 2–3 show that grammaticalisation cannot be 'carved up' reliably into primary and secondary stages and that secondary grammaticalisation is not a viable concept, particularly within a constructional framework.

Chs. 4–7 constitute the major descriptive and analytical components of this thesis. Building on Chs 2–3, they propose three major generalisations: a prediction about bidirectionality developments (Chs. 4–5), a typology of reinforcement (Ch. 6), and a prototypicality-based account of obsolescence (Ch. 7).

Chs. 4–5 show that modal and conditional constructions can develop into each other in both Chinese and other languages. Chs 4–5 propose not only diachronic constructional accounts of the bidirectional developments, but also a hypothesis that predicts bidirectional shifts between other constructions within

individual languages: the performative bidirectionality prediction. The prediction integrates the notion of 'constructicon', construction-specificity and invited inferencing in the Invited Inferencing Theory of Semantic Change (e.g. Traugott & Dasher 2002), and requires no other theoretical constructs such as 'degrammaticalisation', 'insubordination' or 'textualisation', all of which have been associated with late-stage processes or secondary grammaticalisation. Moreover, both directions of development are argued to be cases of grammaticalisation and constructionalisation, and unidirectionality is shown to fail to correctly predict which one of the directions is the less typical one. Despite the lack of unidirectionality, regularity is maintained by the performative bidirectionality prediction.

Ch. 6 examines the classifier constructions and [*xiē* NP] and [*yi xiē* NP], both of whose semantics is 'some'. It models the development of [*xiē* NP] into [*yi xiē* NP] as realignment, or change in inheritance. It also argues that the development is a case of 'reinforcement': the target construction is formally enriched, yet semantically equivalent to the source construction. Nevertheless, even though traditional analyses typically equate reinforcement with grammaticalisation, an alternative, cline-based (secondary) grammaticalisation analysis is rejected in favour of the realignment analysis. A typology of reinforcement is then proposed, within which reinforcement by realignment is distinguished from reinforcement by innovation. The typology explicitly draws on the notion of construction and shows that a correct interpretation of reinforcement relies on an understanding of generalisations at different levels. Finally, Ch. 6 accounts for the degrammaticalisation of *xiē* 'some' into *xiē* 'type' in terms of constructionalisation and posits that it is motivated by the interaction of the lexical semantics of *xiē* 'some' and the schematic properties of the classifier schema. It is a case of degrammaticalisation because *xiē* 'some' is more procedural (grammatical): it resembles a quantifier (e.g. *some*, *many*, *much* in English) and cannot be counted (e.g. **liǎng xiē*, 'two some'). *Xiē* 'type' is more contentful (lexical): it resembles a

type noun (e.g. *type*, *kind*, and *sort* in English) and can be counted (e.g. *liǎng xiē*, 'two types').

Ch. 7 examines schema loss, using as an example the 'adverse avertive schema', an adverbial adjunct schema with the paraphrase 'almost did something adverse; something adverse almost happened'. Similar to previous chapters, it shows that no special apparatus or status needs to be assumed to explain its change, but a multidimensional understanding of the schema is crucial. Drawing on a constructional view on how schemas are built, Ch. 7 proposes that change in a schema's prototypicality may qualitatively affect it so much that it undergoes loss. Ch. 7 also shows that the relationship between schema loss and grammaticalisation is also more nuanced than a linear representation might suggest. While the schema may undergo loss, its daughter constructions may survive and undergo further change, which may qualify as constructionalisation, but not necessarily grammaticalisation proper.

Ch. 8 summarises the three major generalisations proposed: the performative bidirectionality prediction, typology of reinforcement, and prototypicality-based account of obsolescence. It also discusses how the generalisations help demonstrate that late-stage change can be accounted for by the same processes and mechanisms as early-stage change, within the constructionalisation framework. It concludes by hypothesising that any regularity in language change is to be found in processes of change from a construction-specific view.

Chapter 2

Diachronic construction grammar and grammaticalisation

2.1 Introduction

This chapter briefly reviews key notions in diachronic construction grammar and grammaticalisation that are relevant to the rest of the thesis. They include the definition of 'constructions', the style of representation used in the thesis, the relationship between diachronic construction grammar and grammaticalisation, and aspects of the model by Traugott & Trousdale (2013), henceforth referred to as 'the constructionalisation framework', which is the primary frame of reference that the thesis draws on. Some criticisms of the framework are also reviewed and responded to.

This chapter is structured as follows. §2.2 characterises 'constructions' and how they are represented in the thesis. §2.3 introduces the constructionalisation framework. §2.4 discusses criticisms of the framework. §2.5 considers grammaticalisation. §2.6 concludes this chapter.

2.2 Constructions characterised and represented

'Constructions', as conceived by Goldberg, have been defined differently in her key publications (1995, 2006, 2019). The constant over the years is that constructions are mental entities that combine both conventionalised linguistic form and meaning. Conventionalisation is defined as the establishment of behavioural patterns or mental associations among members of a speech community that follow such patterns or possess such associations (for a similar definition, see Schmid 2020: 2). The original 1995 definition requires there to be non-compositionality: "C is a CONSTRUCTION iff$_{def}$ C is a form-meaning pair < F_i, S_i> such that some aspect of F_i or some aspect of S_i is not strictly predictable from C's

component parts or from other previously established constructions" (Goldberg 1995: 4), where F and S stand for form and sense/meaning. Essentially, this definition uses 'idiosyncrasy' as the guiding principle in proposing constructions. Subsequently this definition has been relaxed more and more. Idiosyncrasy is no longer the only criterion in the 2006 definition; 'sufficient frequency' can also define constructions, even if they may be fully predictable. In the 2019 definition, even sufficient frequency is discarded; instead, constructions are defined as "emergent clusters of lossy memory traces… aligned within our… conceptual space on the basis of shared form, function and contextual dimensions" (Goldberg 2019: 7). The post-1995 definitions are difficult to operationalise, especially when historical data are concerned. Therefore, only her 1995 definition is adopted in the thesis.

This thesis does not aim to contribute to the theoretical understanding or definition of 'constructions'. When something is proposed to be a construction, it is assumed to have psychological reality: it is a mental object represented in users' minds, but this thesis does not aim to probe deeper into the nature of such an object or represent it down to the last detail. Rather, the aim is to hypothesise how aspects of it may change over time and, as such, only relevant properties are represented. Moreover, change involves both 'innovation' and 'propagation', the latter of which concerns how an innovative feature or category spreads across the population (e.g. Croft 2000: 5; Traugott & Trousdale 2013: 2). This thesis focuses on the 'innovation' end of change, and therefore uses 'innovation' and 'change' interchangeably. It does not describe or analyse any social linguistic factor that may motivate or condition an innovation and its propagation.

In this thesis, constructions are represented as text boxes. Following Croft (2001: 18), the formal dimensions of constructions include syntax, morphology and phonology and the functional ones include semantics, pragmatics and discourse functions. Of these six dimensions, semantics, pragmatics and syntax are the most relevant ones in this thesis. Semantics and pragmatics are represented using paraphrases. As speech acts are one of the most relevant pragmatic categories in Chs 4–5, a construction's pragmatics is sometimes represented by its speech act

function, referred to by the name of the speech act, which is italicised (i.e. a construction that performatively advises has its pragmatics represented as *advise*). Syntax is represented as the linear order of word classes, which are assumed to be construction-specific (Croft 2001; see also Diessel 2019). Theoretically, more information could be specified, such as distributional behaviour (e.g. Fried & Östman 2004), of the whole construction or each individual slot within it, but where relevant, such information will be given in prose in order to streamline the representation. The kind of representation style used is illustrated in Figure 2.1 below.

2.3 Diachronic construction grammar

There are various models of diachronic construction grammar (e.g. Hilpert 2013, 2015; papers in Barðdal et al. 2015). This thesis follows the framework of 'constructionalisation and constructional change' by Traugott & Trousdale (2013), within which 'constructionalisation' is defined as "the creation of a $form_{new}$-$meaning_{new}$ pairing; in other words, as the development of a new sign" (Traugott & Trousdale 2013: 22). It is distinguished from 'constructional change', where only aspects of a construction's form or meaning change. Constructional change precedes constructionalisation, as it takes both formal and meaning changes to create a new form-meaning pairing, while it may also follow constructionalisation, as a new construction changes. Therefore, two kinds of constructional changes are identified: 'pre-constructionalisation constructional change' and 'post-constructionalisation constructional change'. The problem with 'pre-constructionalisation constructional change' and 'post-constructionalisation constructional change' will be addressed in detail in Ch. 3.4.3, where the focus is on late-stage change. In this chapter, the focus is on the distinction between constructionalisation and constructional change.

This section introduces schematicity and inheritance in the constructionalisation framework in §2.3.1, productivity and compositionality in §2.3.2, and discusses reanalysis (neoanalysis) and analogisation (analogy) in §2.3.3.

2.3.1 Schematicity

Crucial to the constructionalisation framework, or indeed many other cognitive approaches, is the idea that users form generalisations over specific expressions at different levels of 'schematicity' and associations between them, thus creating a network, or taxonomy of interrelated constructions (Langacker 1987; Croft & Cruse 2004; Hudson 2007). In short, language is structured like a network (Diessel 2019) and, accordingly, change happens within it.

Schematicity is a gradient concept (Langacker 1987): under schematic (high-level) constructions are lower-level constructions, whose form and meaning are more specified. The lower-level ones are said to be 'sanctioned by', or 'inherit from' higher-level ones. Different levels of schematicity are connected by 'inheritance' links; in other words, associations between levels of constructions are modelled as inheritance links. The model of inheritance adopted in the thesis is the 'default inheritance' one (e.g. Hudson 2007; Gisborne 2010; Trousdale 2013). General information is stored at higher levels, while more detailed information is specified at lower levels in the inheritance hierarchy. Tokens inherit from their types in the inheritance hierarchy by default, but they first inherit from the lowest (sub)types, followed by higher ones. This is to account for conflict resolution: specific information on lower subyptes override the default.

In line with its usage-based commitment, change in this default inheritance model originates from tokens of use, which not only reflect but also reshape linguistic structure (Bybee 2010). A user may alter parts of their grammar, structured as a network of inheritance hierarchies, in response to changes at token levels (i.e. their experience with language), by modifying aspects of them (constructional change) or over time introducing new types (constructionalisation).

Traugott & Trousdale (2013) label tokens as 'constructs' and three heuristic labels are used to distinguish levels of schematicity above 'constructs': micro-construction, subschema and schema. These labels are also adopted here, especially Chs. 6–7. In theory and practice, there can be more than three levels of

abstractions, but whenever the exact degree of schematicity does not matter in our discussion, 'lower-level' or 'higher-level' will be used to refer to relative levels of schematicity (especially in Chs. 4–5). Figure 2.1 exemplifies the style of representation used in the thesis. It represents a necessity modal schema and its daughter, the *bì* 'must' subschema, which is an indirect *advise* construction (for the definitions of 'modality' and modals in Chinese, see Ch. 4). The mother and daughter are connected by an inheritance link. The pragmatics at the schema level is left underspecified, while it is specified as *advise* at the subschema level.

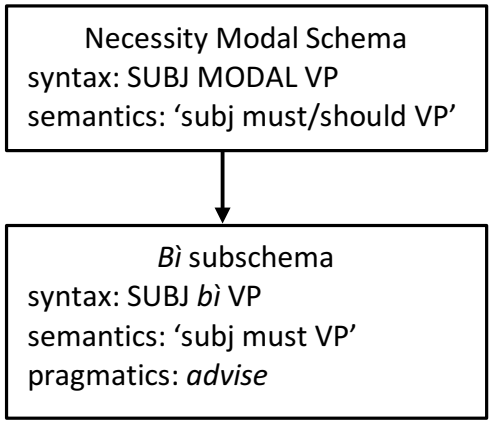

Figure 2.1 An example of the representation style used

Inheritance links are vertical, while recently 'horizontal links', which connect sister constructions on the same level of schematicity, have been receiving more and more attention (e.g. Van de Velde 2014; Traugott 2018b). The nature of such links is an open question (e.g. see Smirnova & Sommerer 2020), but in this thesis horizontal links are proposed to link "constructions which display some differences in form but which share the same meaning" (Smirnova & Sommerer 2020: 25; see also Cappelle 2006).[1] Such links will also be represented, in order to account for inter-schema and intra-schema properties such as analogical associations (Chs. 4–5) and competition (Ch. 7). More links can be added, such as association links between

[1] "The same meaning" should be more specifically 'semantics'. Following Goldberg's (1995) Principle of No Synonymy, each construction is different in meaning.

a construction and others that share with it aspects of their form and/or meaning. Again, such information will be specified only when relevant, to streamline the representation.

2.3.2 Productivity and compositionality

Two other gradient concepts are also identified as crucial to language change: productivity and compositionality. Compositionality relates to predictability between form and meaning within the network of constructions, while productivity may be type or token. It may encompass how token-frequent a construction is, or how many subtypes it can sanction and how frequent they are. Type productivity can also be related to Himmelmann's (2004) model of expansions, especially host-class expansion, which relates to increases in the collocational range of items able to occur within a construction.

In procedural or grammatical constructionalisation, in which a new construction with a grammatical function emerges, schematicity and productivity increases while compositionality decreases. New patterns are by definition new and not predictable from pre-existing constructions, hence decreases in compositionality. Increases in schematicity and productivity can be interrelated because increases in productivity may allow generalisation to happen, leading to increases in schematicity. This is especially true if it is type frequency: change may happen even if token frequency is low (Hoffmann 2005; see also Zhan & Traugott 2015).

This thesis, though drawing on quantitative data where relevant, is predominantly a qualitative investigation into how change can be accounted for within the constructionalisation framework that considers degrees of schematicity, instead of a morpheme-based approach that is typical of the grammaticalisation tradition. Essentially, a morpheme-based perspective considers a linguistic sign in terms of Lehmann's parameters, without explicitly accounting for more abstract patterns that generalise over the sign, or the inheritance network licensing the sign. For the contrast between a morpheme-based approach such as that of Lehmann's

(1995) and a constructional one, see Trousdale & Norde (2013). Therefore, schematicity will be the main focus. However, it is worth considering briefly the interaction between schematicity, productivity and frequency here.

Bybee (2003: 602) has claimed that frequency is "a primary contributor of the process [of grammaticalisation; YHK]". However, recent research has suggested that the relationship between frequency and productivity with respect to change, is much more nuanced than Bybee's claim. Goldberg (2019) has demonstrated that semantic and phonological variability between members of a construction interacts with productivity (by which she means how many novel tokens a construction sanctions), in various ways. Semantic and phonological variability can be understood as aspects of schematicity and type-productivity: the number of (semantic/phonological) subtypes that can be generalised over members of a construction. High semantic/phonological variability means a construction is semantically/phonologically schematic, sanctioning many subtypes with different semantics/phonology. For this reason, Goldberg (2019) notes that it is not always straightforward to distinguish variability from type productivity. Nevertheless, as far as they can be distinguished, Goldberg (2019) shows with experimental evidence that speakers tend to increase the productivity of a construction (i.e. accept more novel tokens sanctioned by the construction) more when it has high variability (schematicity) and low type frequency than when it has low variability and high type frequency (see also Barðdal & Gildea 2015: 35, who propose that coherence, similar to variability, "the internal consistency found between members of a construction", can predict productivity). Correlating high productivity with high type frequency and high schematicity (e.g. Barðdal 2008: 172) therefore does not present the full picture. High productivity results from an interaction of schematicity and type frequency. In sum, higher frequency, be it token or type, does not necessarily correspond to higher productivity or subsequent change; the quality of a construction (how variable/coherent its members are, semantically, phonologically and/or potentially in other domains of grammar) plays a role as well.

2.3.3 Reanalysis and analogy

The process of constructionalisation can be characterised by the idea of 'mismatch'. Speakers and hearers negotiate meanings (as conceptualised in the Invited Inferencing Theory of Semantic Change; Traugott & Dasher 2002; Chs 4–5), and new meanings may arise from old, established constructions during usage events, which, over time, users may (re)interpret as sanctioned by new constructions. That is, initially there is mismatch between new meaning and old form, which is then resolved by matching new meaning and new form together.

This view on change privileges what is traditionally labelled as 'reanalysis'. Following Traugott & Trousdale (2013), who propose the distinction between reanalysis as a mechanism and as a motivation, reanalysis as a mechanism (*how* a pre-existing structure develops into a different one) will be referred to as 'neoanalysis' (following Andersen 2001), and reanalysis as a motivation (*why* a pre-existing structure develops into a different one) as 'parsing'. Correspondingly, analogy as a mechanism is 'analogisation' and as a motivation, 'analogical thinking'.

There has been much discussion about the relative importance of neoanalysis and analogisation (e.g. Fischer 2007, 2018; De Smet 2009; Noël 2019). According to Traugott & Trousdale (2013: 58), "analogisation… necessarily entails… neoanalysis". A more detailed account of neoanalysis as the primary mechanism can be found in Traugott & Trousdale (2013) as well as Zhan & Traugott (2015) and will not be repeated here. Suffice it here to consider a brief example. Given Category X, which gives rise to Category Y by analogy with Category Z, the creation of Y presupposes 'reinterpreting' instances of Category X differently and aligning them with some properties of Category Z. This 'reinterpretation' is a kind of neoanalysis, which suggests that neoanalysis underlies analogisation.

2.4 Some criticisms of the constructionalisation framework

This section first addresses the Sorites Paradox with regards to the distinction between constructionalisation and constructional change in §2.3.2 and evaluates rival frameworks in §2.3.3.

2.4.1 The Sorites Paradox

The constructionalisation framework has been criticised for its lack of precision with respect to 'constructionalisation' and 'constructional change' (e.g. Börjars et al. 2015; Hilpert 2015): how many constructional changes does it take for constructionalisation to happen? This kind of criticism evokes the Sorites Paradox (i.e. the paradox along the lines of "how many grains of sand are a heap?", Flach 2020: 46; see also Hilpert 2015: 134). That is, there is no principled cut-off point, and any postulated cut-off point between two related gradient categories is arbitrary. For example, it is difficult to say when exactly one becomes bald from not bald. As imprecise as the distinction between constructionalisation and constructional change might be, it actually reflects a much more difficult problem with change (and even human cognition) in general: there is very often no absolute objective criterion by which we could divide gradient processes of change or concepts into discrete parts, with identifiable cut-off points; the subjective construal of the observer may be the ultimate deciding factor in proposing such parts or points (see Lakoff 1987 for sympathetic views). For example, Joseph (2014) has pointed out that it is difficult to 'count' grammaticalisation; more specifically, partition a process of grammaticalisation into identifiable stages. Van de Velde & Norde (2016) have discussed the difficulty with the concept of 'novelty' in change (i.e. how to identify an 'unexpected' point of a process of change). The imprecise distinction between constructionalisation and constructional change, as non-trivial as it is, therefore may not be a flaw in the theory as much as it is a challenge faced by any historical linguist.

Recently, Flach (2020) has suggested that 'constructionalisation' is ambiguous: it refers to both the process and the end result. She proposes that the

process should be referred to as *constructional emergence.* However, *constructional emergence* seems to be (*pre-constructionalisation*) *constructional change* with a different label. If true, it still does not solve the problem that identifying the cut-off point or end result in a continuous process of change, more often than not, is arbitrary and relies on the observer's own subjective construal.

2.4.2 Rival frameworks

There are at least two rival frameworks of diachronic construction grammar that are particularly relevant to the thesis: Smirnova's (2015a ,b) 'context-oriented' diachronic construction grammar and Noël's (2017, 2019) 'radical diachronic construction grammar'. Smirnova (2015a) argues for the integration of 'secondary grammaticalisation' into her model of constructionalisation and constructional change, so it will be introduced and critiqued in Ch. 3, where the focus is on secondary grammaticalisation.

Noël (2017, 2019), following the tradition of focusing on analogy in grammaticalisation championed by Fischer (2007, 2018; see also De Smet 2009, 2012), identifies some differences between the constructionalisation framework and what he calls a 'radical diachronic construction grammar'. The differences are summarised in Table 2.1.

	constructionalisation	radical diachronic construction grammar
1	Semasiology-based	Onomasiology-based
2	Emphasis on reanalysis (neoanalysis)	Emphasis on analogy (analogisation)
3	Change as 'mismatch'	Change as 'match'
4	Focus on 'external' system (community/conventionalisation-based)	Focus on 'internal' system (individual/innovation-based)
5	Not 'radically' usage-based	'Radically' usage-based

Table 2.1 Differences between the constructionalisation framework and radical diachronic construction grammar, based on Noël (2019)

He criticises that the constructionalisation framework is not 'radically usage-based', because it does not place enough emphasis on the role of the individual, which, he reasons, follows from the framework's focus on reanalysis (neoanalysis) as the primary mechanism of change, instead of analogy (analogisation).

For Noël, characteristics 1–4 in Table 2.1 are closely related. The semasiological perspective focuses on how form develops meaning, or how contextual inferences of a construction invite the hearer to interpret them as coded semantics, which then may lead to new form. The (re)interpretations, or neoanalyses of inferences as coded meanings, and of new coded meanings as motivations for new form, conceptualise change as 'mismatch', as described in §2.3.3. Crucially, Noël claims that there can be no 'mismatch' within individuals. Change, as it originates from individuals, can only involve 'match', but not 'mismatch' (Noël 2019: 59). Because the constructionalisation framework views change as mismatch, shifting the focus away from individuals, Noël (2019) claims that it is not 'radically' usage-based.

However, Noël's ideas about change and the individual may be questionable. It is true that individuals start change (consciously or unconsciously), but it is equally important to emphasise that language is inherently social and many kinds of change originate from communicative practices *between* individuals (see

also Schmid & Mantlik 2015 and Petré & Van de Velde 2018 for change in individual). As inter-individual differences do exist and can be quite significant (as Noël himself emphasises, citing Dąbrowska 2012 and Barlow 2013), mismatch must also exist within individuals with respect to change: we modify (mostly unconsciously) aspects of our grammar in response to our experience with how others use their grammars. Furthermore, because real language use exhibits a wide range of variation (see Croft 2000, 2010), we can interpret individual differences as mismatch problems, supposedly at all levels of grammar (phonetics, syntax, pragmatics, etc.). However, communication is very often not hampered by such problems; users problem-solve, by matching what is not necessarily predicted by their grammars with what they actually experience. In other words, mismatch is the norm: we constantly have to align our grammars with others', given the ubiquity of variation, and in the process we may also modify our own grammars, creating mismatch within our own grammars at different time points. This is essentially a variationist view on change, which has shown that "grammaticalization, and language change in general, originates in the variation inherent in the verbalization of experience" (Croft 2010: 1).[2]

In sum, Noël's (2019) criticisms are not justified: viewing change as triggered by neoanalysis of mismatch between new and old meaning/form does not play down the role of the individual (as mismatch, or variation, is actually the norm), and therefore does not render such a perspective less usage-based than the analogy-based approach he argues for. In fact, his 'radical diachronic construction grammar' may actually be much less 'usage-based' than he proposes; it seems to downplay the great range of variation inherent to language use within and between individuals (e.g. Croft 2010), thus probably committing one of "the seven deadly sins" of cognitive linguistics: neglecting the social aspects of language (Dąbrowska 2016).

[2] I am grateful to Robert Truswell for pointing out to me that this discussion here recapitulates debates that happened in Labovian variationism, summarised in Labov (1994, 2001).

2.5 Grammaticalisation

This section clarifies what grammaticalisation is assumed to be throughout the thesis. Despite the many problems associated with grammaticalisation (e.g. as detailed in the issue edited by Campbell 2001; Joseph 2011, 2014), grammaticalisation will still be used as a label to refer to "the process whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and once grammaticalised, continue to develop new grammatical functions" (Hopper & Traugott 2003: xv). What exactly 'grammatical functions', 'grammaticalised' or '(degrees of) grammaticality' entails is open to interpretation (even the notion of 'new' can be controversial; see §2.4.1). In keeping with the constructional approach adopted here, both form and meaning, at different levels of schematicity, will be considered to determine whether something has grammaticalised or not. Or in other words, grammaticality will be determined, as Gisborne & Patten (2011) do, on a construction-by-construction basis, within the taxonomy/ies of constructions where change happens. For example, in Ch. 5, a seemingly 'counterdirectional' case of development (from conditionality to modality) is argued to be both grammaticalisation and constructionalisation, and in Ch. 6, a case of development that resembles grammaticalisation is argued to be a case of constructionalisation, but not grammaticalisation.

This interpretation of 'grammaticalised' or 'increases of grammaticality' contrasts with the morpheme-based grammaticalisation approach (e.g. Lehmann 1995; Norde 2009), especially one that assumes unidirectionality, which may view change in grammaticality simply in terms of semantic and/or morphosyntactic categories. From a constructional perspective, it is reductive (see Croft 2001 for more criticisms of such views in linguistic analysis): both form and meaning should be considered, including discourse and pragmatic factors, the most important of which, for this thesis, is performativity (see Chs. 4–5). If both are considered, we may actually observe that a grammatical construction can develop grammatical (procedural) and lexical (contentful) functions (e.g. Trousdale 2013; see also Ch. 6), while what is a case of degrammaticalisation from a morpheme-based or

unidirectionality perspective may turn out to be a case of constructionalisation (e.g. Trousdale & Norde 2013; Ch. 5).

It is also worth noting that, even though according to Börjas & Vincent (2011: 164), most practitioners of grammaticalisation consider unidirectionality as a characteristic of grammaticalisation, grammaticalisation will not be associated with unidirectionality here, in the sense that the development from one morphosyntactic (or semantic) category to another is highly predictable and the opposite direction of change is rare and exceptional. As pointed out by Traugott & Trousdale (2013: 100), unidirectionality is most closely associated with models of 'grammaticalisation as reduction': a linguistic sign loses autonomy in grammaticalisation (such as becoming semantically bleached, phonologically weak and/or syntactically dependent). A constructional perspective suggests that reduction and expansion (such as increases in productivity; §2.3.2) are actually "interwoven" (Traugott & Trousdale 2013: 124) and directionality can be rethought in terms of schematicity, productivity and compositionality (Traugott & Trousdale 2013: Ch. 3.3). The development of a grammatical function in the constructionalisation framework therefore may be a case of grammaticalisation even if it violates unidirectionality (e.g. the case of bidirectionality in Chs. 4 – 5).

Moreover, arguments will be made that grammaticalisation can proceed in both directions between two morphosyntactic categories: modal auxiliaries and conditional connectives, manifesting bidirectionality, rather than unidirectionality (Chs. 4–5). Importantly, it will be argued that both directions of development are regular, and one of the directions cannot be considered as a case of degrammaticalisation, by drawing on crosslinguistic and Chinese-internal data and the parameters of (de)grammaticalisation (Norde 2009, 2011).

In sum, this thesis interprets grammaticalisation from the perspective of construction grammar, within which grammaticalisation is not necessarily unidirectional.

2.6 Conclusion

The constructionalisation framework is introduced, including the notion of 'construction' and how it is represented in the thesis. Two lines of critcisms of the framework are then considered. The first one evokes the Sorites Paradox, while the second one questions the roles of neoanalysis and mismatch in the framework. However, the Sorites Paradox is argued to be a general problem, not exclusively a theory-specific one, and mismatch is argued to permeate all levels of grammar, especially interpersonally; accordingly, neoanalysis is the norm, rather than the exception. Finally, grammaticalisation from the constructional perspective is considered. It is proposed that increases in grammaticality are to be assessed and determined on a constructional basis, and unidirectionality need not be associated with grammaticalisation.

The rest of the thesis will first consider 'secondary grammaticalisation' in Ch.3: assuming a non-unidirectionality-based, constructional perspective on grammaticalisation, whether it is theoretically possible and advantageous to propose one or more processes of change particular to certain late stages of development. Chs 4–7 then will demonstrate that, within the constructional framework, all supposedly late-stage changes considered in the thesis can be accounted for without proposing any special process. There is therefore no evidence that suggests the distinction between 'primary' and 'secondary grammaticalisation'. Moreover, it will be shown that the constructional framework, with its focus on different levels of representations, has advantages over rival accounts, particularly ones that assume or are inspired by a unidirectionality-based definition of grammaticalisation, because the constructional framework can account for non-unidirectional changes in a principled manner (i.e. bidirecdtionality in Chs. 4 – 5, counterdirectionality in Ch. 6 and various aspects of obsolescence in Ch. 7).

Chapter 3

Secondary grammaticalisation from a constructional perspective

3.1 Introduction

Some studies in the grammaticalisation tradition have proposed the concept of 'secondary grammaticalisation' to account for late-stage grammatical change. Secondary grammaticalisation has been claimed to predict, or at least correlate with, certain processes of change that are characteristic of grammatical expressions at more advanced stages of development. This chapter reviews the literature on secondary grammaticalisation and evaluates its place within the constructionalisation framework.

There are several definitions of 'secondary grammaticalisation', each employing different criteria to determine whether something has undergone secondary grammaticalisation. Before a more detailed review of what 'secondary grammaticalisation' means in the literature, following is a working definition that sums up the vast array of phenomena that the (secondary) grammaticalisation literature aims to pin down: 'the process whereby a grammatical item or construction becomes more grammatical' (cf. Givón 1991; Hopper & Traugott 2003; Norde 2009, 2011, 2012; Traugott 2002, 2010; Breban 2014, 2015; Breban & Kranich 2015). In other words, secondary grammaticalisation is 'the process of change that a grammatical expression undergoes'. For example, it has been claimed that conditional connectives such as *if* can develop from modal markers (e.g. Traugott 1985; van der Auwera & Plungian 1998; Ch. 4) and classifiers or quantifiers can develop aspectual or degree-modifying functions (e.g. Biq 2004; Traugott 2008; Trousdale 2013; Kuo 2018). As modal markers and quantifiers are already grammatical (though not in the same way), their respective developments into conditional connectives and degree modifiers can be considered as secondary

grammaticalisation. But as we shall see, the literature has not had much consensus on finer details of such developments.

The main argument presented in this chapter is that secondary grammaticalisation is not a particularly useful concept. It does not make predications or claims that are not captured by pre-existing concepts. In the constructionalisation framework, it also does not correspond neatly to any particular stage of constructionalisation and constructional change. Presumably in any theory of change, any process of change that applies to grammatical items or constructions can and should be modelled as a process that can also turn lexical items or constructions into grammatical ones. What sets early-stage and late-stage changes apart, then, is not how they proceed (e.g. through 'bleaching', 'semanticisation of inferences', 'obligatorification', etc.), but whether the source items or constructions are lexical or grammatical. Even so, in cases of multiple sources, a strict distinction between lexical and grammatical sources cannot be maintined (see §3.4.1). The view presented here therefore proposes that crosslinguistic regularity in late-stage development (i.e. the fact that certain grammatical categories tend to have a small number of grammatical, not lexical, sources) should be modelled as the interaction of grammatical categories and their usage contexts that result in well-established processes of change, without invoking 'secondary grammaticalisation' as a special process of change.

Building on the main argument in this chapter, Chs. 4–7 analyse four late-stage changes and show that they can be accounted for by pre-existing concepts in historical linguistics and interpret them specifically in the constructionalisation framework. They also demonstrate that the constructionalisation framework has advantages over the unidirectionality-based grammaticalisation model, in that the former can analyse a wider range of phenomena (e.g. bidirectional developments in Chs. 4–5, degrammaticalisation in Ch. 6 and obsolescence in Ch. 7).

This chapter is structured as follows. §3.2 introduces 'secondary grammaticalisation' as defined by various researchers. §3.3 presents and evaluates arguments for and against secondary grammaticalisation in the literature. §3.4

approaches secondary grammaticalisation from Traugott & Trousdale's (2013) constructional perspective. §3.5 critiques a rival constructional account by Smirnova (2015a) that argues in favour of secondary grammaticalisation. §3.6 summarises and briefly introduces how subsequent chapters further develop arguments for a constructional perspective on late-stage change.

3.2 Secondary grammaticalisation: origins, definitions and problems

This section outlines problems with the notion of 'secondary grammaticalisation'. §3.2.1 introduces its historical/conceptual origins. §3.2.2–3.2.3 review different accounts of secondary grammaticalisation. §3.2.4 summarises.

3.2.1 Secondary grammaticalisation: origins

No comprehensive review is attempted here. For more detailed accounts, the reader is referred to Norde (2009), Breban (2014), von Mengden (2016) and the special *Language Sciences* issue on secondary grammaticalisation edited by Breban & Kranich (2015).

As pointed out by many, the earliest conceptual origin of 'secondary grammaticalisation' can be attributed to Kuryłowicz (1965), even though he did not explicitly coin the term 'secondary grammaticalisation' (e.g. Breban 2014, 2015). The following passage by Kuryłowicz is often cited and credited as the conceptual forefather of what has come to be known as secondary grammaticalisation:

> "Grammaticalisation consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from less grammatical to a more grammatical status, e.g. from a derivative formant [morpheme; YHK] to an inflectional one."
>
> Kuryłowicz (1965: 69)

As von Mengden's (2016) close reading of the intellectual history behind 'secondary grammaticalisation' shows, Kuryłowicz (1965) actually did not discuss

grammaticalisation in a rigorous fashion, nor does he aim to present a coherent account of what 'more grammatical' may mean. Kuryłowicz (1965) cites no references and "reads like an overview article of language change, a state-of-the-art description with no intention to make any novel claim or to promote any new idea" (von Mengden 2016: 125).

However, Kuryłowicz's idea has gained currency within the tradition of grammaticalisation (e.g. Traugott 2002, 2010; Norde 2009, 2012), most of which have not been as critical of the original paper and the context from which the quote above is taken. This has not laid down a particularly solid foundation upon which subsequent literature is built.

The term 'secondary grammaticalisation' itself is coined by Givón (1991) in a diachronic study of dependent clause morphosyntax in Biblical Hebrew. In his conclusion, he notes that

> "The rise of great many morpho-syntactic patterns can only be understood as a process of *secondary grammaticalisation*. For example, *past tense* morphemes seldom arise directly, but rather as reanalysis of either *perfect* or *perfective* aspects. Similarly, *present* tense usually arises through the reanalysis of *durative*, or even the *perfect* aspect… the same phenomenon of secondary grammaticalisation is also found in the evolution of syntactic constructions. For example, the *passive* often arises as reanalysis of the *reflexive*. What is suggested in this article is that existing, earlier-grammaticalised morpho-syntax can give rise, via secondary grammaticalisation, to other morpho-syntactic patterns."
>
> Givón (1991: 305; italics original)

As Breban (2014, 2015) remarks, secondary grammaticalisation in the sense that Givón (1991) intends it includes both formal and functional change. However, following him, there has been a plethora of definitions, all slightly different. Breban (2014) exemplifies this terminological confusion by listing four different definitions

in *the Oxford Handbook of Grammaticalisation* (Heine & Narrog 2011). Their differences boil down to the following issues: "Is the change identified as secondary grammaticalisation functional, semantic, or is it a matter of bondedness? Is the source item grammatical or grammaticalised?" (Breban 2014: 470). The last issue that Breban mentions is of the least importance. She notes that the crux is that

> "[allowing] *grammatical* rather than grammaticalised input extends the scope of secondary grammaticalisation, and allows us to include grammaticalisation processes that have a source item/construction which is grammatical (non-lexical) but did not develop via grammaticalisation from an earlier lexical source" Breban (2014: 479; italics original)

But in a later paper she notes that "there are, to my knowledge, no case studies of secondary grammaticalisation that have a grammatical, but not grammtaicalised, item as input" (Breban 2015: 169). Therefore, the issue regarding the distinction between grammatical vs. grammaticalised will not be discussed any further.[3]

In a nutshell, what has been largely agreed upon, explicitly or implicitly, is that the source/input in secondary grammaticalisation is grammatical and the target/output is 'more grammatical'. The most important issue is what constitutes 'more grammatical', or 'secondary grammaticalisation' exactly– formal, functional or a combination of both criteria. The following sections review different positions.

3.2.2 Secondary grammaticalisation as a formal process

Traugott (2002: 34), the first to coin 'primary grammaticalisation' and explicitly set up the contrast between primary and secondary grammaticalisation, claims that in secondary grammaticalisation "expressions of functional categories become more

[3] On top of this, given the paucity of historical data in most languages and the prevalence of inferential reconstruction in grammaticalisation research on such languages, which often draws parallels from established cases of grammaticalisation, the distinction between 'grammatical' and 'grammaticalised' can be circular and hard to maintain (see also von Mengden 2016: footnote 7).

bonded over time", exemplifying it with contracted auxiliaries such as "*will* > *'l*, *would >'d*, *have > 've*".[4] She also supposes this definition to be what Kuryłowicz means in the quote above, but notes that she excludes "from derivative formant to an inflectional one" (Kuryłowicz 1965: 52) from her definition "because of the difficulty of determining exactly what role derivation has in grammaticalisation" (Traugott 2002: 27). The reason for more bondedness in secondary grammaticalisation, according to Traugott (2002: 34), is that it is "assumed to be a possible by-product of rapid speech, which can lead to changes especially in morphosyntax and morphophonology".

Interestingly, in addition to morphosyntactic processes such as "morphological bonding/fusion" and "phonetic erosion", Traugott (2002: 27) also lists "bleaching" as one of the processes in secondary grammaticalisation, presumably a functional process whereby source meaning, or some facet(s) of it, is lost. She does not elaborate on 'bleaching' or how it is related to examples such as "*will* > *'l*" and the likes. Some subsequent literature therefore focuses more on the 'morphosyntactic', formal side of Traugott (2002)'s view on secondary grammaticalisation and glosses over 'bleaching'. For example, summarising Traugott (2002), Breban (2014:472) says that "[in] this interpretation, grammaticalisation processes consist of an initial change in *function* from lexical to grammatical and a (possible) later change in *form* toward more bondedness" (italics original).

Traugott's (2002) view of secondary grammaticalisation has been taken up by Brinton & Traugott (2005) and various others. Most notably, by using Lehmann's (1995) parameters, Norde (2009; 2011; 2012) elaborates on this view and applies it to cases of degrammaticalisation where items become less morphosyntactically integrated but may acquire new meaning. More specifically, Norde (2012: 76) posits

[4] Note that Hopper & Traugott (2003: xv) already imply the primary vs. secondary contrast in terms of function in their definition of grammaticalisation, similar to that of Kuryłowicz's (1965): "the process whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and once grammaticalised, continue to develop new grammatical functions", where 'once grammaticalised…" suggests secondary development.

that the following four-part cline can be evenly divided into primary and secondary grammaticalisation (i.e. enclitic auxiliary > inflectional tense marker is secondary grammaticalisation).

(1) lexical verb > auxiliary > enclitic auxiliary > inflectional tense marker

Even though Norde (2012) does not deny the role of function in (de)grammaticalisation, when it comes to secondary grammaticalisation, her focus is on form, as clear in the representation in (1).

3.2.3 Secondary grammaticalisation as a functional process

Two important processes widely recognised in grammaticalisation are subjectification and intersubjectification (Tragugott 2003; for recent reviews, see Kranich 2015 and Narrog 2015).[5] Their standard definitions are as follows:

> Subjectification: "the mechanism whereby meanings come over time to encode or externalise the SP/W's perspectives and attitudes as constrained by the communicative world of the speech event, rather than so- called 'real-world' characteristics of the event or situation referred to."
>
> Traugott (2003: 126)
>
> Intersubjectification: "the semasiological process whereby meanings come over time to encode or externalise implicatures regarding SP/W's attention to the 'self' of AD/R in both an epistemic and a social sense."
>
> Traugott (2003: 129–130)

The absence of subjectification has been associated with secondary grammaticalisation. Traugott (2010: 40–41) claims that "subjectification is more

[5] There are different approaches to (inter)subjectification, including Langacker's Cognitive Grammar approach (1990). In the thesis, (inter)subjectification is approached from the perspective of the Invited Inferencing Theory of Semantic Change (Traugott 2003; see Chs. 4 – 5).

likely to occur in primary grammaticalisation (the shift from lexical/constructional to grammatical) than in secondary grammaticalisation (the development of grammatical material into more grammatical material)" because the latter "often involves the development into automatised structures (especially in the case of inflections). The fewer the options become, the less likely subjectification will be". That is, items or constructions that have undergone secondary grammaticalisation may be less susceptible to subjectification because they tend to be more obligatory, and less perceptually salient and amenable to any discourse or rhetorical strategy.

This inverse correlation between secondary grammaticalisation and subjectification was already suggested in Traugott (2002), where she associated secondary grammaticalisation with bleaching, morphosyntactic bondedness and rapid speech, as noted in §3.2.2. Secondary grammaticalisation as Traugott (2002, 2010) conceives of it is thus not entirely 'morphosyntactic' or 'functional'; it is supposedly a composite change where form and function play a role. However, some researchers have devoted most of their attention to the functional side of secondary grammaticalisation, which is similar to how some have focused more on morphosyntactic bondedness than 'bleaching', even though Traugott (2002) mentions both as processes of secondary grammaticalisation.

What follows is a great multitude of views. On one extreme end of the spectrum of views, Detges & Waltereit (2002) reject any formal process as part of 'secondary grammaticalisation'. They propose that increases in bondedness do not constitute grammaticalisation, which they see as a predominantly functional process whereby an item or construction takes on a (more) grammatical function/meaning. Waltereit (2011, 2012) uses 'secondary grammaticalisation' specifically in the sense of 'semantic widening', whereas for him 'primary grammaticalisation' involves metonymic change (broadly construed as change that results from invited inferencing). He uses Jespersen's Cycle as an example. The negative construction *ne… pas* 'not' in French first developed into an emphatic negation marker 'not at all' from negative polarity contexts such as *ne... un pas* '(go) not a step' in Old French. For him, this constitutes a metonymic change, as '(go) not

a step' pragmatically implies '(did) not (go) at all'. Subsequently, this emphatic meaning 'not at all' was widened, or generalised, so that *ne… pas* has come to mark standard negation 'not' (see also Detges & Waltereit 2002). Crucial to the distinction between metonymic change and semantic widening is that in the latter the target meaning 'not' is logically superordinate to the source meaning 'not at all' ('not at all' is a type of 'not'), whereas in the former there is no such logical relationship between the target meaning 'not a step' and the source meaning 'not at all' (i.e. 'not at all' is not a type of 'not a step').

Some have also suggested that intersubjectification may be associated with secondary grammaticalisation (Narrog 2012a, b), based on Traugott's (2003) hypothesis that intersubjectification follows subjectification, as the former presupposes the latter. More recently, Kranich (2015) and Narrog (2015) approach 'secondary grammaticalisation' from a functional (meaning) perspective. Even though they do not deny the role of form in (secondary) grammaticalisation, they almost exclusively focus on (what they consider as) functional processes in secondary grammaticalisation. Kranich (2015) claims that developments with lexical sources follow different functional processes than developments with grammatical sources. That is, primary grammaticalisation and secondary grammaticalisation can be distinguished on grounds of functional processes. Narrog (2015) claims that increases in performativity characterise late-stage meaning change, particularly with respect to textual organisation. Their views will be evaluated in more detail in §3.3.2–§3.3.3.

3.2.4 Summary

Secondary grammaticalisation has been approached from a variety of perspectives. There has not been any consensus, yet. The edited volume by Breban & Kranich (2015) is representative of the current state of knowledge: some believe that secondary grammaticalisation is a useful concept (e.g. Kranich 2015; Smirnova 2015), others are more skeptical (e.g. Breban 2015; Killie 2015; Bisang 2015). Among those who hold similar views, they might not necessarily agree about

specific details. For example, some may focus on 'semantic widening' while others or '(inter)subjectification'. A critical overview of arguments for and against secondary grammaticalisation is presented in §3.3.

3.3 Arguments for and against secondary grammaticalisation

Studies that are against (a simple definition of) secondary grammaticalisation are reviewed in §3.3.1. They share the same view that secondary grammaticalisation, as defined by various approaches, is not uniquely associated with any particular type of change and can be subsumed under a more general framework, particularly that of grammaticalisation, without a special place in it. In §3.3.2–3.3.3, two studies that associate secondary grammaticalisation with certain types of change are evaluated: Kranich (2015) and Narrog (2015). All subsections lead up to the same conclusion: secondary grammaticalisation is not a particularly useful concept, as it is not distinguished by any unique process not found outside what is supposedly primary grammaticalisation.

3.3.1 Studies against secondary grammaticalisation

After a critical review of all the definitions of secondary grammaticalisation, Breban (2014: 498) concludes that "the changes identified [in her review; YHK] can all be captured within a general definition of grammaticalisation, and neither of them justifies the addition of secondary grammaticalisation as a separate notion". In other words, she believes that secondary grammaticalisation is not defined exclusively by any process distinct from grammaticalisation and all purported cases of secondary grammaticalisation are actually just cases of grammaticalisation. Drawing on the development of the *–ly* suffix in English, Killie (2015) comes to a similar conclusion: all the processes claimed to constitute secondary grammaticalisation can be found in primary grammaticalisation (for similar views, see Bisang 2015; López-Couso & Méndez-Naya 2015).

Breban (2015) holds a more nuanced view. She proposes that there are actually two kinds of late-stage development. One of them is 'secondary

grammaticalisation' in the sense of Givón (1991) which involves "a new grammatical function and morphosyntactic reconfiguration" and the other "is more appropriately analysed as an extension with the original grammaticalisation process" (Breban 2015: 161). In the introductory article to the special issue Breban (2015) appears in, Breban & Kranich (2015) label the second type as 'extended grammaticalisation', which is essentially defined as semantic and/or pragmatic widening without concomitant formal change. Smirnova (2015a) concurs, suggesting that 'secondary grammaticalisation' be restricted to the type of change Givón (1991) has in mind, namely co-evolution of form and function.

The line of argument that secondary grammaticalisation is epiphenomenal, or it is a derivative phenomenon, not exclusively associated with any unique process of change, is reminiscent of what has been raised against 'grammaticalisation', as found in the special issue edited by Campbell (2001) and the publications by Joseph (e.g. 2011, 2014, 2016). However, taking a stance against secondary grammaticalisation on the grounds that it is epiphenomenal need not commit one to a view against using grammaticalisation as a descriptive label in general, and potentially an object for theoretical investigation (e.g. Breban 2014 presumably views 'grammaticalisation' favourably yet 'secondary grammaticalisation' critically). According to Bybee (2010: 112), from a functional perspective, that grammaticalisation is epiphenomenal is expected, because grammar itself, being domain-general, is an interaction of various processes. If Byee is correct that grammaticalisation itself is secondary, it would seem superfluous to introduce another epiphenomenal dimension to it, i.e. secondary grammaticalisation.

3.3.2 Kranich's evidence for secondary grammaticalisation

Kranich (2015) lists nine functional processes that may be observed in grammaticalisation and concludes from her review of the processes that 'objectification' is uniquely associated with secondary grammaticalisation, while 'obligatorification' and 'paradigmaticisation', two processes that for Kranich (2015)

lead to more restricted use, correlate with late-stage development more strongly than early-stage development, following Diewald and Smirnova's (2012) idea that paradigmaticisation is a late-stage grammaticalisation process (see also Diewald 2010 for the idea that 'more grammatical' can be understood as 'more paradigmatic' . She therefore claims that secondary grammaticalisation is a valid concept: it predicts 'objectification' and correlates with 'obligatorification' and 'paradigmaticisation'. The claims about these processes are dissected blow. It will be shown that, as Breban (2014) and Killie (2015) claim, they are not unique secondary grammaticalisation processes.

3.3.2.1 Objectification

Objectification is sometimes cited to be an important process in secondary grammaticalisation (e.g. Norde 2009; Breban 2010a; 2014, 2015; Kranich 2015; Narrog 2015). This term originates in Kranich (2008) and is further developed in Kranich (2010a, b). Kranich (2008: 242) defines it as "a process by which items/constructions become less available for the expression of the speaker's belief state/ attitude toward the proposition", but become available in a wider range of non-subjective contexts. This is closely related to what Detges & Waltereit (2002) and Waltereit (2011, 2012) call 'semantic widening'— "the generalisation over time of marked constructions [e.g. subjective constructions; YHK], un-marking them in the process" (Waltereit 2012: 66).

The motivation behind objectification follows from Traugott's (2002; 2010) observation that in advanced stages of grammaticalisation, 'automatisation' happens (Haiman 1994), so that speakers do not have the option to express their subjectivity with highly automatised items or constructions. 'Automatisation' is related to 'chunking' (Bybee 2007, 2010): that bits of language are stored, processed, and produced together holistically. Interestingly, in several publications (especially Bybee & Torres Cacoullos 2009), Bybee has argued that 'prefabs', i.e. prefabricated units of language that can include *both* lexical and grammaticalising items like 'chunks', play an important role in advancing formal and semantic

development in grammaticalisation. This is because, being readily accessible, prefabs tend to be used in more contexts, triggering semantic neoanalysis, and their frequent occurrences can further reduce their morphosyntactic or morphophonological composition. This suggests that 'automatised', 'routinised' or 'chunked' structures can be found in any stage of development, and is in fact crucial in primary grammaticalisation (see also Hopper & Traugott 2003 for a comparable process, 'idiomatisation'). That 'automatisation' is not specific to grammatical items calls into question whether, as Kranich (2015) claims, its derived process 'objectification' is really unique to secondary grammaticalisation.

Narrog (2015), sceptical of the concept of 'objectification', suggests that many cases of 'objectification' identified in the literature can be identified as 'de-subjectification' or 'de-inter-subjectification', which are essentially subtypes of 'bleaching' whereby "expressive subjective or intersubjective meanings wear off in highly frequent use in certain contexts at late stages of grammaticalisation" (Narrog 2015: 158). Some cases of it may also be identified as semantic widening (Waltereit 2012). Assuming that 'objectification' falls under bleaching, a common process in grammaticalisation irrespective of the lexical/grammatical status of the input, and that the ultimate motivation behind it, automatisation or chunking, is not found exclusively in late-stage development, Kranich's (2015) claim that objectification is uniquely associated with secondary grammaticalisation is rejected here.

3.3.2.2 Obligatorification and paradigmaticisation

Obligatorification and paradigmaticisation, for Lehmann (1995) are not purely 'functional' processes, even though Kranich (2015) assumes them to be so. She acknowledges that these processes can be interpreted as formal, but she nevertheless remarks that "[obligatory] rules that affect an item's use, however, have an impact on its possible meaning spectrum… for instance, when a construction's obligatory in certain contexts, it cannot fulfill speaker-based, intersubjective or pragmatic meanings…" and 'paradigmaticisation' has "semantic-

pragmatic repercussions" as a paradigm contains relational meaning (Kranich 2015: 174; see also Diewald 2010; Diewald & Smirnova 2012).

Assuming, as Kranich (2015) does, that obligatorification and paradigmaticisation are functional processes, it is questionable that they are necessarily, or more often than not, part of late-stage development. For example, classifiers typically have nouns as their immediate sources (especially nouns that mean 'person' or 'tree'; see Peyraube 1998 for the history of classifiers in Chinese; Heine & Kuteva 2002 for crosslinguistic parallels). They are obligatory in counting in certain languages, for example Chinese (e.g. Aikenvald 2000; Bisang 2015) and paradigm-like, in the sense that classifiers are selected on the basis of noun classes (for more details, see Ch. 6). Classifiers in such languages are therefore products of *primary* grammaticalisation *with* obligatorification and paradigmaticisation. However, classifiers may undergo further development that involves no obligatorification and paradigmaticisation. Bisang (2015) observes that in some Sinitic languages 'bare' classifier constructions (classifier constructions without numerals; see also Cheng & Sybesma 1999) have developed into definiteness markers, but crucially definiteness-marking is not obligatory (see also Li & Bisang 2012). This means that definiteness-marking bare classifiers are products of *secondary* grammaticalisation *without* obligatorification and paradigmaticisation. Obligatorification and paradigmaticisation are not uniquely associated with secondary grammaticalisation, at least in the case of classifiers.

Bisang (2004; 2009) has also claimed that obligatorification and paradigmaticisation do not typically happen in Southeast Asian languages for functional *and* formal reasons.[6] López-Couso & Méndez-Naya (2015) note that

[6] One line of reasoning that explains the lack of obligatorification and/or paradigmaticisation in Southeast Asian languages and Chinese (compared to inflectional languages) is as follows. Functionally, pragmatic inferencing of grammatical meaning is prominent, preventing the rise of obligatory categories (see Bisang 2004, 2010). Formally, functional words are not greatly reduced or distinguished from their lexical counterparts, due to the preferences for discrete syllabic boundaries and specific phonotactic constraints that inhibit formal erosion (Ansaldo & Lim 2004). These two factors prevent the rise of inflectional paradigms, as it requires formally tight-knit members that express semantically well-defined (instead of just pragmatically inferred) categories (see also Bisang 2009). This

adverbial subordinators like *if* crosslinguistically can develop into complementisers, but they are not necessarily obligatory. For example, in Spanish *si* 'if' and *que* 'that' can alternate when the matrix verb has the meaning of 'wonder', but neither is obligatory.

(2)	me	sorprendería	mucho	(*si*/*que*)	viniese
	1SG.ACC	surprise.1SG.CON	much	(if/that)	come.3SG.SBJV

'I would be surprised if she came'

based on López-Couso & Méndez-Naya (2015)

Obligatorification and paradigmaticisation should be gradient and encompass both formal and functional poles of one or more constructions. From a constructional perspective, it is not very helpful to use them as diagnostics or proof that secondary grammaticalisation is a valid concept that predicts or even describes change. They do not always reliably correspond to more advanced stages of development.

In sum, from a constructional perspective, both form and meaning have to be considered. Kranich's (2015) categorisation of functional processes does not paint a clear picture of what 'secondary grammaticalisation' may mean in a constructional framework, other than being a collection of functional changes.[7] More significantly, under closer scrutiny some of her processes are not specific to late-stage development.

explanation is circular (e.g. lack of obligatoriness may result in the prevalence of pragmatic inferencing, instead of the other way around). Regardless of the underlying explanation(s), there is no denying that in isolating languages, obligatorification and paradigmaticisation do not arise frequently (in the ways they do in inflectional languages) in any development, be it early or late (except for maybe classifiers), and that formal and functional factors from phonology to pragmatics may need to be considered in any explanation for late-stage development.

[7] However, it should be acknowledged that it is not explicitly her intention to add anything to a constructional framework. She clearly states that her article concerns 'functional processes'.

3.3.3 Narrog's evidence for secondary grammaticalisation

Narrog (2015), similar to Kranich (2015), focuses mostly on the function/meaning side of secondary grammaticalisation. He does not explicitly challenge the notion of 'secondary grammaticalisation' but takes as his starting point the development of new grammatical meanings out of old grammatical meanings, labelling it as 'secondary grammaticalisation'. He comes to the conclusion that 'increases in speech-act orientation', or 'increases in performativity', particularly with respect to 'textual functions' can characterise late-stage meaning development.

His view, along with 'increases in performativity' will be introduced in more detail and critiqued in Chs 4–5. Suffice it to reiterate here that both form and function have to be considered in a constructional framework. Furthermore, rather than equating 'secondary grammaticalisation' with late-stage meaning development like Narrog (2015) does, secondary grammaticalisation deserves more critical evaluation. If late-stage meaning change can indeed be captured by Narrog's (2015) more specific types of increase in performativity, there would seem to be little point in explicitly labelling it as 'secondary grammaticalisation' when 'increases in performativity', or (inter)subjectification could be a clear alternative.

In sum, even though 'increases in performativity' or 'textual functions' may characterise late-stage development, it does not necessarily validate the concept of 'secondary grammaticalisation'.

3.3.4 Summary

There are divergent arguments for and against secondary grammaticalisation. As shown in §3.3.1, Breban (2014) rejects it, claiming that all secondary grammaticalisations are just grammaticalisations, but Breban (2015) proposes that it be restricted to cases where there is co-evolution of form and meaning. Smirnova (2015a) argues for the same restriction as well. The consensus on secondary grammaticalisation shared between Breban (2014; 2015), Smirnova (2015a) and Killie (2015) is that many, if not all, purported processes of secondary

grammaticalisation can also be found in primary grammaticalisation. These processes fall under Breban's (2015) label of 'extended grammaticalisation'.

Contrary to this consensus among critics of secondary grammaticalisation, Kranich (2015) views secondary grammaticalisation favourably, claiming that there are functional processes that distinguish it from primary grammaticalisation. However, these processes were shown in §3.3.2 to be not as unique as she thinks. Narrog (2015) does not argue for secondary grammaticalisation *per se*, but assumes it. Nevertheless, it was questioned in §3.3.3 whether late-stage development should be labelled as 'secondary grammaticalisation' as he does, when there are alternative and established concepts available. In sum, this section sides with the consensus on secondary grammaticalisation in §3.3.1: secondary grammaticalisation is not associated with any particular process of change.

3.4 Secondary grammaticalisation from a constructional perspective

Secondary grammaticalisation is questioned from a general perspective in §3.4.1, as well as in terms of the constructionalisation framework by Traugott & Trousdale (2013). Various purported 'secondary grammaticalisation' processes are then interpreted in the framework in §3.4.2, in order to show that the processes have no equivalents in the framework. In fact, such processes can already be accounted for by pre-existing processes and the label 'secondary grammaticalisation' does not produce any unique insight and is of no theoretical importance. §3.4.3 considers the role of 'post-constructionalisation constructional change'. §3.4.4 summarises.

3.4.1 General criticisms against secondary grammaticalisation

The evidence of crosslinguistic regularity is often used as an argument for the concept of secondary grammaticalisation (e.g. Smirnova 2015a). That is, the fact that the sources of some grammatical categories are typically a specific set of other grammatical categories suggests that their developments are unique and should be understood as a special collection of processes that is distinct from 'grammaticalisation' in general. Implicit in other arguments for 'secondary

grammaticalisation' is the idea that change is typically unidirectional, and different points on a cline of grammaticalisation can be identified and further categorised into at least two stages, 'primary' and 'secondary'.

There are two problems with these positions. First, crosslinguistic regularity does not necessarily call for the concept of 'secondary grammaticalisation' that is different from 'grammaticalisation'. Second, 'cutting up' a cline into primary and secondary stages is not feasible, as some, if not most, constructions have multiple sources. The problems will be discussed one by one below.

First, following §3.3, secondary grammaticalisation is not uniquely distinguished by any process. Therefore, instead of positing a special collection of processes like secondary grammaticalisation, crosslinguistic regularity can simply be accounted for as the interaction of grammatical categories and usage contexts that results in well-established processes of change that can happen at any stage (i.e. (inter)subjectification, bleaching, obligatorification and paradigmaticisation, etc.). No novel proposal such as secondary grammaticalisation is needed to account for crosslinguistic regularity when there are well-established processes of change. Moreover, whether such regularity is unidirectional (i.e. it typically proceeds from one grammatical category to another) may be questionable. Chs. 4–6 will present evidence for phenomena that are not unidirectional (bidirectionality and counterdirectionality), yet can be accounted for in a principled manner using familiar processes of change and the constructionalisation model.

Second, a procedural/grammatical construction may be composed of a range of grammatical *and* lexical items. That is, they have multiple sources (e.g. papers edited by De Smet et al. 2013; Petré 2014; see also Ch. 5.2.2.5). In such cases, one and the same grammatical construction may develop grammatical *and* lexical functions (Trousdale 2013; Ch. 6). Moreover, it is difficult to divide such a construction's development into 'primary' and 'secondary' stages: should we pick the grammatical items or the lexical ones as our starting point of a grammaticalisation cline? It would be a case of primary grammaticalisation if the starting point is lexical; secondary grammaticalisation if it is grammatical. Take for

example two classical cases of procedural constructionalisations, *be going to* and *a lot of* (Traugott 2008; Traugott & Trousdale 2013). *Be, to*, *a* and *of* are clearly grammatical, while *lot* in its original sense is lexical. *Go* is lexical, but *going* is inflected, thus partly grammatical. It does not seem particularly theoretically interesting to categorise *be going to* or *a lot of* as having undergone primary or secondary grammaticalisation. From a constructional perspective, what is at stake is how to account for the fact that *be going to* and *a lot of* have been chunked as units with morphosyntactic features and meanings that are different from the origins (i.e. they have constructionalised). Where exactly on a 'cline' they are or where the starting point of a cline is does not matter as much as the fact that it is *be going to* and *a lot of* that have become constructions. What is interesting for a constructional grammarian is to account for the contributions that the multiple sources of a construction make to the construction in an inheritance model, not the starting point for a grammaticalisation cline (see also Trousdale 2013 for the multiple source construction, *give* + *-ing*, which develop both lexical and grammatical functions). Similar arguments are presented in Chs. 4–5, in order to maintain that there is regularity in bidirectional developments, despite lack of unidirectionality.

The equal commitment to both form and function in construction grammar may actually reveal more fine-grained complexity in change than previously thought. Again, such complexity may not be reduced to a linear representation. For example, the developments involving contraction such as "*will* > *'ll*, *would* >*'d*, *have* > *'ve*", cited in Traugott (2002: 37), have come to be regarded by some as typical cases of 'secondary grammaticalisation' involving increases in morphosyntactic bondedness (§3.2.2). However, in a constructional framework such development cannot be simplistically glossed over as formal constructional change, without considering any possible functional differentiation between the contracted forms and their full counterparts (e.g. see Nesselhauf 2014 for the recent history of '*ll* in relation to *will* and *shall*) and, assuming there is one, the more schematic construction that sanctions the contracted auxiliaries. In other words, given a

contracted form and its full counterpart, the analyst has to investigate both their functional differences (which, assuming Goldberg's 1995: 67 "the Principle of No Synonymy", must exist) and possible connections with similar constructions, instead of treating one as a simple contracted form of the other.

In sum, crosslinguistic regularity does not necessitate the concept of 'secondary grammaticalisation'. The distinction between primary and secondary grammaticalisation cannot be maintained when it comes to multiple source constructions.

Moreover, more theory-internally, grammar is not organised linearly in diachronic construction grammar, so generalisations like 'clines', which underlie views in favour of 'secondary grammaticalisation' (e.g. Smirnova 2015a), underspecifiy the complexity involved. More specifically, a constructional framework views grammar as having varying degrees of schematicity in an inheritance hierarchy or network, and assumes no absolute divide between grammar and lexicon. Grammar is organised in such a way that it is multidimensional, with different generalisations at different levels, and cannot be easily reduced to a linear representation. Of the grammaticalisation cline, Trousdale (2013: 176) thus remarks that "it fails to consider the larger constructional changes within which such micro-changes are embedded". Similar arguments have also been put forward by Traugott & Trousdale (2013), Trousdale (2014), Torrent (2015), Fischer (2018), among others (see Ch. 6.6.7). Very briefly, some examples are considered here (see also §3.4.3 below). Analogical associations at different levels of schematicity can be observed to apply in change. The study by De Smet et al. (2018) shows that constructions are influenced by not only similar constructions at similar schematic levels, but also the larger schemas they appear in *and* their lexical origins. One example is *start to V*, which is both influenced by its original lexical meaning of *start* 'make a sudden movement' and other pre-established constructions that also take *to*-infinitives (e.g. *begin to V*). Furthermore, Chs. 4–5 will show that to capture an accurate account of how modal and conditional constructions develop into each other, which manifests 'bidirectionality' rather than

'unidirectionality', the analyst needs to know construction-specific details about morphosyntax, semantics and pragmatics, at both schematic and substantive levels. In other words, the analyst needs to know aspects of the 'constructicon', the idea that language is organised into an interconnected web of constructions (see Barðdal & Gildea 2015 for a review). Chs. 6–7 also show that parts of the schema may analogically motivate the development of daughter constructions or 'demotivate' the whole scheme to such an extent that it causes obsolescence.

The preceding discussion is not intended to deny the strong empirical generalisation that lexical items such as nouns and verbs develop into grammatical markers, while grammatical ones typically do not become lexical. This kind of unidirectionality is worth discussing briefly here. In the usage-based model by Croft (2007, 2010), based on his Radical Construction Grammar (Croft 2001), grammaticalisation originates from the verbalisation of experience: to convey their experience (or thoughts in general), speakers use patterns that their addressees can recognise, and such patterns become conventionalised (see §2.2 for conventionalisation). In this model, the lexical categories of noun and verb can assist in the verbalisation of a speaker's experience better than any other categories because they have the most detailed conceptual content that approximates the experience (following Cognitive Grammar by Langacker 1987; 1991). Frequently used nouns and verbs develop into grammatical markers when they become conventionalised ways of partially reconstructing the experience. The reverse process whereby grammatical markers develop into nouns or verbs does not happen typically, because grammatical markers, having comparatively more abstract conceptual content that is not as detailed as that of nouns and verbs, cannot be easily 'reverse-engineered' back into noun and verb. It is relatively easy to extract abstract grammatical meanings from detailed nominal and verbal meanings, while it is more difficult to reconstruct detailed meanings on the basis of abstract ones. To draw an analogy, nouns and verbs are like marble sculptures. While a marble sculpture can be taken apart to form pieces easily (i.e. nouns and

verbs grammaticalise), it is more difficult to reconstruct the sculpture from its pieces.

3.4.2 Secondary grammaticalisation in the constructionalisation framework

Previous studies that deal with 'secondary grammaticalisation', or 'late-stage development', when reinterpreted in the framework of constructionalisation by Traugott & Trousdale (2013), do not neatly correspond to the types of change postulated in the framework: constructionalisation and constructional change. Some studies identified in §3.2 only focus on form or function alone; therefore, the processes of change they posit as typical of secondary grammaticalisation would correspond to only either the formal or functional aspect of post-constructionalisation constructional change, which "typically involve expansion of collocations, and may also involve morphological and phonological reduction" (Traugott & Trousdale 2013: 27).

The kind of secondary grammaticalisation that Givón (1991) intends, which involves concomitant formal and functional change, can be understood as 'constructionalisation'. But this does not mean secondary grammaticalisation in Givón's sense warrants a place in Traugott & Trousdale's (2013)'s ontology of constructionalisation and constructional change. As pointed out above, there is no process of change that can distinguish early-stage and late-stage developments. Furthermore, positing something like 'secondary constructionalisation' to be equivalent to Givón's secondary grammaticalisation does not solve the problem that there are constructions with multiple sources. It is difficult, and perhaps not very intellectually interesting for a construction grammarian, to determine which of several sources constitutes the starting point of a grammaticalisation cline. It should be the combination of them as a unit that has undergone change.

In lieu of 'secondary grammaticalisation', a more theory-neutral term is 'late-stage' grammatical change, which, translated into the constructionalisation framework, may mean either 'constructionalisation' or 'post-constructionalisation constructional change'. The distinction between post-constructionalisation constructional change and *pre*-constructionalisation constructional change can be

blurred, because post-constructionalisation, new constructional change may over time lead to more constructionalisation (see also 'the Sorites Paradox' in §2.4.1). Most of the thesis examines constructionalisations of grammatical constructions, except for Ch. 7, which analyses grammatical schema loss. Therefore, the problematic distinction between pre- and post-constructionalisation constructional change is not a particularly thorny issue here, because they necessarily blend into each other and need not be maintained.

However, it is worth dissecting in the next section what post-constructional change may mean, as the notion of 'lateness' or 'advanced stage of development' is built into its definition.

3.4.3 Post-constructionalisation constructional change

Post-constructionalisation constructional change has been more closely associated with the newly constructionalised construction and/or its source construction. For example, some studies (Traugott & Trousdale 2013; Trousdale 2015; Zhan & Traugott 2015) have identified the following changes as potentially post-constructional: expanded collocations (Himmelmann's 2004 host-class expansion), morphological and phonological reduction, such as *be going to* V (> *gonna* V) and *a lot of* NP > *alotta* NP) and changes in frequency, all of which typically concern the new construction. Shao et al. (2019) have examined distributional changes that the quantifier construction *a bunch of* NP and its source construction (the partitive) have gone through after *a bunch of* NP constructionalised. However, in principle it can apply at other levels of schematicity as well, not just at the level where constructionalisation happened.

For example, a new construction may undergo further change and become more entrenched and a better representative of the schema it falls under (i.e. it increases in prototypicality), which may mean further 'bleaching', 'obligatorification', 'morphophonological reduction' or any process that aligns it better with the schema (see Traugott & Trousdale 2013: 172). From the perspective of the schema that the new construction aligns to, it undergoes post-constructional

change as well, by gaining increases in, first and foremost, type and token productivities, and potentially schematicity. This will be shown in Ch. 6 to be what happens to different parts of the classifier schema, after the realignment of the quantifier construction, *xiē* 'some'.

Moreover, further constructionalisations at less schematic levels, but under one schema, may happen ("Post-constructionalisation new construction-types may be formed on the schematic template", Traugott & Trousdale 2013: 230; see also Torrent 2015), which, with respect to the schema, may also be post-constructional change. This will also be shown in Ch. 6 to be what happens to the classifier schema. After the constructionalisation of *xiē* into the classifier schema, more constructions come into being under the classifier schema, such as *yi xiē* 'some; lit. one some', *bàn xiē* 'few; little', and *xiē* 'kind', which leads the classifier schema to increase its productivity. Similarly, after schema loss, some daughter constructions may survive and align to a schema more general than the obsolescent schema. For the schema being aligned to, it is also post-constructionalisation constructional change (see Ch. 7 for more details).

The cumulative effect of many micro-constructions aligning to a schema may be that over time the schema becomes more easily identifiable and distinguished from (historically) related constructions (i.e. 'category strengthening' by Hudson 1997). Eventually under the construction there may be "pockets of productivity" (Cappelle 2014), whereby formally and historically related subschemas/micro-constructions have their own behavioural or collocational profiles (e.g. Hilpert 2015; see also Killie 2015 for the complex history of the *–ly* suffix in English and De Smet & Van de Velde 2017 for how *-ly* adverbs have diverged).

As pointed above, the distinction between pre- and post-constructionalisation constructional change may be hard to maintain. It is especially true when discussing more than one construction across various levels of schematicity, as such a distinction requires cutting up multiple threads of what is essentially gradient, and interrelated development into identifiable stages. For example, the schema loss to be accounted for in Ch. 7 is motivated by the change

its micro-constructions are going through, which end up constructionalising and aligning under the schema that is even higher-level than the obsolescent schema. The obsolescence of the schema is a kind of post-constructionalisation with respect to itself, as the schema itself is not developing into a new form-meaning pairing. However, what goes on under the obsolescent schema is actually pre-constructionalisation constructional change for the micro-constructions, whereby they are becoming new constructions. But what the schema undergoes cannot be neatly separated from the process of change that is affecting its daughters; the schema is built on its micro-constructions, after all. In other words, changes to micro-constructions that have implications across multiple levels may render it difficult to distinguish constructionalisation and pre-/post-constructionalisation constructional changes.[8]

Nevertheless, the post-constructional processes discussed are better captured in the constructional framework than any alternative linear model. Increases in prototypicality or type-productivity in a schema concern various different members of a schema and can only be accounted for schema-internally, processes leading to 'pockets of productivity' require thinking in terms of levels of schematicity, and a comprehensive account of schema loss requires an understanding of both the schema and its substantive members.

In sum, while post-constructionalisation constructional change as a concept is not unproblematic, in cases where it does not feed into pre-constructionalisation constructional change, it may be a helpful concept to refer to what happens in the (re)organisation of pre-existing constructions.

3.4.4 Summary

Two points were used as arguments against secondary grammaticalisation in §3.4.1: no unique process of change can be identified in secondary grammaticalisation and

[8] Note that schemas and subschemas by themselves do not change. As they are generalisations over micro-constructions, they change in response of changes to micro-constructions (or whateve the lowest level of generalisation is labelled).

multiple source constructions challenge the distinction between primary and secondary grammaticalisation. From a constructional perspective, change happens at different levels of schematicity, so a linear, cline-based view on language that is inherent to secondary grammaticalisation is also questionable. It is also shown in §3.4.2 that secondary grammaticalisation also does not correspond uniquely to any one concept in the constructionalisation framework. However, late-stage grammatical change can be conceived of as constructionalisation or post-constructionalisation constructional change. Finally, even though the blurry distinction between pre-constructionalisation and post-constructionalisation constructional changes is acknowledged, §3.4.3 still reviewed post-constructionalisation constructional changes positively, remarking that it may happen at various levels, which, again, cannot be easily accounted for in a linear model that a favourable view on secondary grammaticalisation typically presupposes.

3.5 Smirnova's model of constructionalisation

As noted in §3.3.1, Smirnova (2015a) restricts the concept of secondary grammaticalisation to the original definition intended by Givón (1991) and views it favourably. She approaches it from a constructional perspective that uses a model different from Traugott & Trousdale's (2013). Her account competes with the view presented in §3.4. This section therefore focuses on her model in §3.5.1 and critiques her arguments for secondary grammaticalisation in §3.5.2–§3.5.3, by drawing on some arguments in §3.4.1. §3.5.4 concludes.

3.5.1 Context-oriented model of constructionalisation

Smirnova's model is inspired by the line of work on context in grammaticalisation that goes back to Diewald (2002). Instead of defining constructionalisation as the creation of a new form-function pairing, Smirnova (2015a: 216) sees constructionalisation as the "rise and fixation of *contextual restrictions*" (italics mine) in terms of both form and function, and the subsequent constructional

change as a process in which "the restrictions gradually loosen" (see also Smirnova 2015b). Her view on 'context' is formulated explicitly using Himmelmann's (2004), which includes host-class, syntax, semantic and pragmatic contexts. She especially stresses the commitment to context in her model, saying that "context is the crucial part" of her model and that "it does not figure as prominently in the model by Traugott & Trousdale (2013)" (Smirnova 2015a: 219), by which she probably means that Traugott & Trousdale's (2013) does not incorporate Himmelmann's (2004) model of contexts as explicitly as she does.

Essentially, her notion of 'constructionalisation' is not incompatible with that of Traugott & Trousdale's (2013). Smirnova (2015a) sees constructionalisation as resulting from neoanalysis of the form and function of one or more old constructions, typically through fixing of units (what she calls "syntacticisation" or "morphologisation") or formal category shift, and semanticisation of pragmatic inferences (e.g. via processes such as subjectification; Chs. 4 – 5). She especially emphasises how these processes lead to contextual restrictions that define a new construction.

However, defining 'constructional change' in terms of the loss of restriction in the way Smirnova does is, ironically, too restrictive. Smirnova (2015a: 222) claims that in constructional changes "contextual restrictions are gradually given up… and then integrated into a higher-order constructional schema". In fact, post-constructionalisation, a construction can become more or less restricted, which partially depends on the properties of the schema. For example, as will be analysed in more detail in Ch. 6, quantifier *xiē* 'some' in Chinese could occur preverbally or postverbally. This is a general property of quantifiers. But after it constructionalised into a classifier construction, it has gradually become restricted to post-verbal contexts, following the syntactic constraint of the bare classifier schema. There is therefore no 'syntactic expansion'. In short, restrictions are construction-specific; being integrated into a higher-order schema does not guarantee that a construction will become less restricted contextually, at least in the way Smirnova (2015a) defines what 'context' is.

Furthermore, during a construction's obsolescence, it can often be restricted stylistically, pragmatically, or even syntactically (Leech et al. 2009; Hundt & Leech 2012; Hundt 2014). Exaptation, in which an obsolescent construction (somewhat unexpectedly) gives rise to a new construction, also presupposes a certain degree of obsolescence in terms of increases in formal and functional restrictions (Norde & Trousdale 2016; see also the volume edited by Norde & Van de Velde 2016; Ch. 7). Post-constructionalisation change in Smirnova's (2015a, b) model can only account for the rise, but not the fall of a new construction (or its subsequent rise again, in the case of exaptation), because it associates "rise and fixation of contextual restrictions" (Smirnova 2015a: 216) with gain, but not loss, when increases in contextual restrictions can actually be part of loss.

In sum, ideally, a constructional model should be able to explain both the birth and death of constructions, i.e. constructionalisation and obsolescence, or at least provide a suitable conceptual framework that can accommodate them (e.g. Traugott & Trousdale 2013; Noël 2017, 2019). Smirnova's model in its present form cannot, as it builds increasing contextual restrictions into her definition of constructionalisation (the creation of a new construction), when restrictions are construction-specific, and may also characterise loss.

3.5.2 Smirnova's view on 'clines'

Smirnova (2015a: 217) views the representation of 'cline' or 'path(way)' in grammaticalisation studies favourably and considers "the cross-linguistic validity, regularity and universality of secondary grammaticalisation paths" as one reason for the value of 'secondary grammaticalisation'. She also remarks that:

> "The mere existence of a great number of grammatical markers whose development would not have been possible without an earlier grammaticalisation process demonstrates the ubiquity of secondary grammaticalisation (see e.g. the papers in this issue [i.e. Breban & Kranich 2015; YHK]). This means that universal (secondary) grammaticalisation clines

> do exist, and that their regularities are not necessarily motivated by the lexical material that stands at the ultimate starting point of a grammaticalisation chain. In other words, the impact of a particular lexical source is of secondary or even insignificant role in secondary grammaticalisation. This view allows us to treat clearly similar processes of secondary grammaticalisation in term of universal grammaticalisation paths with their own regularities, even if their ultimate lexical sources do not coincide." Smirnova (2015a: 217)

In a footnote, she says that "by 'universal' I mean here 'cross-linguistically robust' and not 'absolutely universal'. Importantly, language-specific universal paths" (Smirnova 2015a: footnote 3). Putting aside the issue of what exactly 'language-specific universal paths' may mean, there are two points of criticism from a constructional perspective that can be raised against Smirnova regarding her position on 'clines' and 'secondary grammaticalisation'. The first one is discussed immediately below and the second in the next section.

In a dedicatedly constructional framework, the 'cline' probably does not have as much importance as Smirnova seems to place on it. 'Lexical sources' and the corresponding 'clines/paths' connecting them to grammatical markers are powerful generalisations, as established by classic publications in the grammaticalisation tradition, such as Heine et al. (1991), Heine & Kuteva (2002) and Bybee et al. (1994). As important as they are, more recent studies have shown that detailed usage contexts actually also figure prominently in the evolution of a grammatical construction and there is much more to say about a construction's development than describing it in terms of 'cline', 'source' and/or 'outcome' (see also §3.4.1).

Given the same lexical source and grammatical target, two grammatical constructions can nevertheless diverge synchronically in their synchronic collocational patterns, which reflects their diachronic usage. For example, Hilpert (2008) shows that *be going to* in English and *gaan* 'go' in Dutch are both future

markers and share the same lexical source of 'motion', yet they are not used with the same collocational patterns, which ultimately reflect their different diachronic sources of usage that have given rise to them. That is, developmental histories are consistent with the fine-grained contexts from which they emerge (see De Smet 2012 for a comparable view), which cannot be reduced to a cline-like representation that Smirnova (2015a) suggests, if we commit to a context-oriented, usage-based approach. In several publications, Waltereit has argued that the synchrony of a grammatical construction actually follows closely the diachrony of its usage: "current synchronic meaning reflects earlier discourse patterns" (Waltereit 2012: 53; see also Detges & Waltereit 2002). Ziegeler's (2004) "Lexical Memory Traces Hypothesis" also suggests that a grammatical construction retains much of its source meaning. Various other studies also indicate the 'conservative' effect of usage contexts and constructions from which new grammatical expressions emerge, (e.g. Petré 2012; Traugott & Trousdale 2013; more recently De Smet et al. 2018), which can be subsumed under the heading of 'persistence', to be discussed in §3.5.3.

In sum, these studies suggest that a linear view that represents grammatical developments as clines is not satisfactory enough. It then follows that "the cross-linguistic validity, regularity and universality" that Smirnova attributes to "secondary grammaticalisation *paths*" (Smirnova 2015a:217; italics mine) do not necessarily validate the notion of 'secondary grammaticalisation' in a constructional framework that prioritises detailed usage contexts. Similar arguments in favor of a multidimensional view (as opposed to linear) abound in the literature (e.g. Trousdale 2014; Torrent 2015; Fischer 2018; see also Ch. 6). As argued in § 3.3, secondary grammaticalisation is not distinguished by any unique process. The so-called secondary grammaticalisation paths or clines therefore can be interpreted as familiar processes of change that result from the interaction of constructions and their usage contexts, without proposing a special process like 'secondary grammaticalisation' (see also §3.4.1).

3.5.3 Smirnova's view on the (in)significance of source constructions

Smirnova (2015a: 217) asserts that "the impact of a particular lexical source is of secondary or even insignificant role in secondary grammaticalisation" However, the issue in which Smirnova (2015a) appears is actually full of examples showing that late-stage grammatical constructions are motivated and/or constrained by their histories, in ways similar to how *be going to* in English and *gaan* 'go' in Dutch are, as discussed in the preceding subsection. 'Persistence', whereby the meaning, distribution and even syntax/structure of the lexical source are reflected within the new construction and its distribution, is a pervasive phenomenon in grammatical development (Hopper 1991; Breban 2009; De Smet 2012, 2016). This is captured under the heading the "source determination" hypothesis by Bybee et al. (1994:9). Furthermore, Traugott & Trousdale (2013: 228) remark that "[persistence] appears to be a fact in change in general". This suggests that similar processes of change that lead to 'persistence' are at work in both primary and secondary grammaticalisation (and beyond, in any sort of change), which calls into question the validity of their primary vs. secondary distinction (for similar arguments, not necessarily drawing on 'persistence', see Breban 2014; Breban 2015; Killie 2015).

If, in a context-oriented constructional framework, reference must be made to both the source construction (regardless of the target construction's grammatical status) and the source construction's fine-grained properties and uses, in order to account for persistence, then there is little theoretical value left in separating a particular late stage of grammatical development from certain (grammatical) types of constructions and labelling the stage as 'secondary grammaticalisation'.[9]

By way of illustration, examples of persistence are drawn from Breban & Kranich (2015), the issue that Smirnova (2015a) appears in. Bisang (2015) reports

[9] In fact, Smirnova (2015a) does discuss 'persistence'. She suggests that reflexive markers can develop from different lexical sources, yet still evolve into passive markers, and that one could argue against her position by appealing to persistence. However, Smirnova (2015a: 217) adds: "It is rather irrelevant what lexical source the reflexive marker has come from, because it does not seem to have any considerable impact on the process of secondary grammaticalisation." I will zoom in on whether it indeed does not have any considerable impact in a constructional model immediately below.

that the main verb in Khmer, *ʔaoy* ‘give; order’ has developed into ‘coverb’ ‘for’, a causative verb ‘make; allow’, an adverbial subordinator expressing purpose (‘in order to’) or manner (‘in the manner of’), and a complementiser ‘that’ (see also Bisang 2004 and references therein). He describes the main verb function as the ultimate origin of all the other functions, the preposition function as one of the two sources for causative *ʔaoy* (the other being the main verb), and causative *ʔaoy* as the source of adverbial subordinator and complementiser *ʔaoy*. It can be schematised as follows.

(3) main verb > preposition > causative > subordinator/complementiser
(4) main verb > causative > subordinator/complementiser

He further notes that so much of the causative meaning persists in both the subordinator and complementiser constructions that sometimes double interpretations are available, as in (5) and (6).

(5) Coexistence of causative verb and adverbial subordinator

khɲom	khɔm	thvɤː-kaː(r)	ʔaoy	ʔoːpùk	khɲom	sɔpbaːy-cɤt.
I	hard	work	PURP	father	I	be.happy-heart

a. Causative verb: I work hard and make father happy (by doing this).’
b. Adverbial subordinator (purpose): ‘I work hard for my father to be happy.’

Bisang (2015: 138; ultimately from Jacob 1968: 141)

(6) Coexistence of causative verb and complementiser

nɪ̀ːəs	mɯn	cɔs	ʔaoy	mɪ̀ːən	kaː	ʔvɤy.
she	NEG	want	COMP	there.is	matter	what

a. Causative verb: ‘She did not want to make something bad happen.’
b. Complementiser: ‘She did not want that anything [bad] happens.’

Bisang (2015: 138); ultimately from Bisang (1992: 443)

Moreover, sometimes *ʔaoy* can be read as a causative verb, adverbial subordinator or complementiser within the same context, as in (7).

(7) Coexistence of coverb, causative verb and adverbial subordinator:

ʔoːpùk sɔs phteəh ʔaoy koːn nɤu

father build house give child live/stay

a. Coverb: 'Father builds a house for his children to live in.'

b. Causative verb: 'Father builds a house [and] makes his children live there.'

c. Adverbial subordinator: 'Father builds a house with the purpose that his children live there.' Bisang (2015: 139)[10]

With respect to complementiser *ʔaoy*, Bisang remarks that complementiser selection is sensitive to the matrix verb and the factuality of the embedded proposition. *ʔaoy* is used for a non-factual proposition and selected by verbs that are 'harmonic' with one of the main verb meanings of *ʔaoy* 'order', such as *bɔskɔəp* 'command', *bɔɲcùːn* 'send' and *praə* 'employ'. Illustrating with examples like (8), he remarks the main verb function of *ʔaoy* is "preserved in the complementiser function" (Bisang 2015: 140).

(8) bɔskɔəp mənùh m-neək ʔaoy thvɤː-kaː.

order man one-CL that do-work

'[He] ordered that someone work.'

Bisang (2015: 140) ultimately from Bisang (1992: 442)[11]

[10] Translation b has been slightly modified to make it more idiomatic. The original is "Father builds a house for making his children to live there" (Bisang 2015: 139).

[11] The gloss and translation have been slightly modified to emphasise the complementizer function. *ʔaoy* was originally glossed as "let" and the translation was "[He] ordered someone to work" (Bisang 2015: 140).

Bisang's examples suggest that persistence may exist in secondary grammaticalisation and can be made sense of only by considering the source construction(s), which sometimes is the 'lexical' source, as in the case of complementiser *ʔaoy*.[12]

López-Couso & Méndez-Naya (2015) examine the developments of several adverbial subordinators into complementisers in English, such as *if, lest, as if*/*though* and *like*. Their adverbial subordination uses are exemplified in (9), while their complementation uses in (10) (taken from López-Couso & Méndez-Naya 2015: 189–190, who have taken them, directly or through modification, from other sources such as Quirk et al 1985, Huddleston & Pullum 2002 and the Helsinki Corpus).

(9a) If Colin is in London, he is undoubtedly staying at the Hilton.
(9b) He talks as if/as though/like he has a potato in his mouth.
(9c) Earthen moulds were being hastily erected lest an attack should be launched that night.
(10a) It would be a good idea if you hired a bodyguard.
(10b) It seemed as if/as though/like he was trying to hide his true identity.
(10c) but bycause this texte of sayncte Paule is in latyn, and husbandes commonely can but lyttell laten, I fere leaste they can-not vnderstande it.

Using functional and formal criteria, López-Couso & Méndez-Naya (2015) demonstrate that the subordination and complementation uses are grammatically distinct, but related. Crucially, they note that those complementisers, labelled as "minor declarative complementisers" by them, are restricted to contexts where the

[12] The ambiguity in (7) could be a case of homophony. To argue more convincingly that the multiple uses of *ʔaoy* are a case of persistence, it would require more historical data that demonstrate the multiple readings are related and that contexts that allow for the multiple readings are systematic, not random. Bisang (2015: 140) implies, but does not state that *ʔaoy* as a complementiser is 'only' selected by verbs "that cover about the same functional range" as its main verb function of *ʔaoy*. To show more convincingly that the multiple uses of *ʔaoy* are a case of persistence, ideally one should show that it is never selected as a complementiser by any verb outside the functional range.

matrix clauses are non-assertive and epistemic evaluation by the speaker is at stake. Their corpus investigation also reveals that the overwhelming majority of minor declarative complementisers have non-assertive matrix clauses (from 88.9% to 100%; López-Couso & Méndez-Naya 2015: 193). Citing their previous study (López-Couso & Méndez-Naya 2001) and Huddleson & Pullum (2002: 1152), they claim

> "[the] originally adverbial links therefore harmonize with the epistemic nature of the complementation structures in which they appear… In other words, some of the original semantic features of these links in the domain of adverbial subordination are retained when they come to be used as complementizers, thus heavily constraining their occurrence in their subsidiary function within the complementation domain."
>
> López-Couso & Méndez-Naya (2015: 193)

They also explicitly connect their claim with Hopper's (1991) definition of 'persistence' and liken it to Bisang's (2015) examples of the complementiser *ʔaoy*, which also exhibits persistence (see 6 and 8).

Killie, synthesising previous research on the adverbial *–ly* suffix in English, explicitly argues that "primary and secondary grammaticalisation processes are not essentially different and that we should do away with the concept of secondary grammaticalisation altogether since it leaves the impression that they are" (Killie 2015: 203). One of her arguments draws from 'persistence': properties from earlier stages in the development of *–ly* are still present in later stages, even when *–ly* has become so general that some regard it as "void of meaning" (Killie 2015: 208, citing Plag 2003: 195 and Giegerich 2012: 352). This kind of persistence is also what would be expected in a typical case of primary grammaticalisation: source constructions constraint output constructions, regardless of grammatical status or developmental stage.

In sum, there are numerous examples in the literature that suggest that the notion of 'persistence' is an important factor that constrains developmental

processes (see also De Smet 2010 and Vincent & Börjars 2010 on the subject making *for… to* in English). As 'persistence' is construction-specific—it can only be observed by referencing the source construction— and there seems to be no apparent difference between persistence in early and late stages of grammatical development, it then follows that Smirnova's (2015a) claim that "the impact of a particular lexical source is of secondary or even insignificant role in secondary grammaticalisation" is not true.[13] The impact may persist well into late stages of development, as late-stage grammatical constructions reflect their 'cumulative histories' (i.e. their lexical sources and uses; see especially 8).

This is not to say that general typological comparison that draws on crosslinguistic grammatical sources should never be attempted because it can never be detailed enough. On the contrary, as Givón (1991), Heine et al. (1991), Croft (2000, 2001, 2003), Heine & Kuteva (2002) among many others show, there are cross-linguistically recurring patterns of development out of grammatical meaning/structure that deserve scholarly attention (e.g. reflexive > passive; see Givón's 1991 quote in §2.1). However, even though crosslinguistic regularity is important, the notion of 'secondary grammaticalisation' need not be postulated on the basis of crosslinguistic regularity from one grammatical category to another, as there is no special late-stage process of change (§3.3). Rather, any regularity may be interpreted as an interaction of grammatical constructions and usage contexts that results in well-known processes of change (e.g. invited inferencing, semantic bleaching, obligatorification, etc.). Moreover, from a more theoretical point of view, Smirnova's constructional model is explicitly built on a detailed and context-

[13] Whether there is any qualitative or quantitative difference between 'early stage' and 'late stage' persistence is an empirical question that no literature seems to have had an answer for. Based on the current state of knowledge, it is assumed here that all persistence phenomena are to do with general principles such as the 'gradual' nature of change (see the collection of papers edited by Traugott & Trousdale 2010), how local neoanalysis and/or analogisation works (see De Smet 2010, 2012, 2016; Rosemeyer 2014), the exemplar-based categorisation system that retains detailed traces of usage contexts (e.g. Bybee 2010; Goldberg 2019) and the idea that schemas are organised around particular substantive members (e.g. Diessel 2019; Ch. 7). Therefore, there might not be any significant difference between 'early stage' or 'late stage' persistence.

oriented constructional view. Arguing for 'secondary grammaticalisation' while overlooking construction-specific contexts seems to go against its core theoretical commitment to 'construction' and its emphasis on 'context' (see also §3.4.1).

3.5.4 Summary

Smirnova (2015a) is a crucial study in the intersection of secondary grammaticalisation and diachronic construction grammar. She argues for the importance of secondary grammaticalisation within her model of constructionalisation and constructional change. However, her model was shown to be too restricted to account for post-constructionalisation increases in contextual restrictions and obsolescence in §3.5.1. Her claim about the regular, universal clines of secondary grammaticalisation was broken down into two related parts: the validity of clines and the regularity/universality of secondary grammaticalisation. The validity of clines in a constructional framework that pays close attention to construction-specific properties was called into question in §3.5.2. The regularity of secondary grammaticalisation that is somehow decoupled from construction-specificity by Smirnova was also questioned in §3.5.3, drawing on various cases of persistence in purported cases of secondary grammaticalisation that are specific to source constructions. The regularity that can be observed may only hold on a very abstract level of form-functional organisation, but construction-specific details, particularly with respect to source construction properties, do not justify postulating secondary grammaticalisation as part of the standard description or theoretical toolkit in a context-orientated framework of diachronic construction grammar.

3.6 Conclusion

The concept 'secondary grammaticalisation' is rejected, for the following reasons.

First, while it is still under debate, processes in secondary grammaticalisation are argued to be not different from primary grammaticalisation (as also argued by Breban 2014, 2015; Killie 2015; see §3.2–3.3).

Second, secondary grammaticalisation presupposes a dividable grammaticalisation cline, typically a unidirectional one. However, this view may be problematic when it comes to development with no lexical source (as Chs. 4–6 will also show). Multiple source constructions also present a thorny problem for secondary grammaticalisation: they cannot be categorised neatly into grammatical or lexical constructions, or be identified precisely on a cline of grammaticalisation (§3.4).

From a constructional perspective, the distinction between primary and secondary grammaticalisation is also not particularly informative, as it does not help model or predict fine-grained trajectories of change or usage contexts that a constructional approach is supposed to model (contra Smirnova 2015a; §3.5).

To build on the view on late-stage grammatical change presented in this chapter, the rest of the thesis is organised as follows. Chs. 4–5 analyse bidirectional developments between modal and conditional constructions, showing that both directions of change are actually cases of grammaticalisation, and invited inferencing, which can happen at early and late stages. Various other processes of change that have been associated with late-stage development or secondary grammaticalisation, such as degrammaticalisation, insubordination, and textualisation, are argued to be inadequate accounts of the developments. Importantly, a generalisation that incorporates invited inferencing and construction-specificity, the performative bidirectionality prediction, is hypothesised to explain bidirectional developments, both within and beyond Chinese, which requires a schematic understanding of the constructicon within which such change happens, at different levels.

Ch. 6 examines constructionalisations involving quantifier and classifier constructions. Explanations are argued to reside at different schematic parts of the classifier schema, while a unidirectional, grammaticalisation account of the data is shown to make wrong predictions. Moreover, a contentful classifier construction is posited to originate from the interaction between a procedural classifier construction and the classifier schema, therefore it exhibits counterdirectionality

(from procedural to contentful constructions). Ch. 6 thus show that constructionalisation and grammaticalisation do not necessarily meet and there is not necessarily unidirectionality. Instead of the birth or growth of a construction, Ch. 7 considers the death of a schema, a kind of post-constructionalisation change. Similarly, by drawing on how schemas are formed, explanations will be shown to hold not only at the substantive level, but also the schematic one where both form and function have to be considered. Furthermore, the account suggests that schema loss does not entail obsolescence of lower-level constructions; instead, they may undergo further constructionalisation or grammaticalisation, which indicates that considerations of different levels of schematicity may yield different interpretations of change, and such levels cannot be reduced linearly.

Chapter 4

From modality to conditionality and back: Invited inferencing and bidirectionality in diachronic construction grammar

4.1 Introduction[1]

This chapter focuses on the development of a modal construction into a conditional construction via invited inferencing and briefly shows that the opposite direction of development also exists (leaving the specifics to Ch. 5). Therefore, bidirectionality exists between modal and conditional constructions. Specifically, the deontic modal of necessity *bì* 'must' invites inferences of conditionality when *bì* is used teleologically to advise the addressee indirectly and developes into a protasis connective. This change via invited inferencing intersects with constructionalisation in the constructionalisation framework, with the result that the source construction's pragmatics becomes the target construction's semantics. The opposite direction of development is analysed in a similar fashion: a process of invited inferencing intersects with construcitonalisation. Based on this observation, bidirectional developments are argued to be 'regular' processes of change, but what renders them seemingly 'irregular' (in the sense that they are bidirectional, not unidirectional) is that multiple sources of semantics and construction-specific performativity are involved, which makes it difficult to generalise over 'source' and 'target' domains of semantics, using linear representations such as *modal* > *conditional* and *conditional* > *modal*. A generalisation is proposed to account for

[1] Acknowledgement: The first half of the chapter, especially §4.3, is based on Kuo (accepted a), which has been accepted for publication in *Journal of Historical Pragmatics*. It is under copyright, and the publisher should be contacted for permission to re-use the material in any form.

bidirectionality, 'the bidirectionality performative prediction', which states that performative equivalence between two constructions may allow their respective 'head' constructions (i.e. 'profile equivalence' by Croft 2001) to develop into each other, if the categories that the head constructions belong to are not consistently distinguished morphosyntactically in the 'constructicon' of the language, i.e. the network of constructions of varying degrees of schematicity (Fillmore et al. 1988; see Barðdal & Gildea 2015 for a review). The prediction thus requires thinking in terms of the performative functions of constructs, indirect speech act constructions, and the overall properties of the indirect act constructions' heads/profile equivalences (see also Traugott & Trousdale 2013; Petré 2014; De Smet et al. 2018 for the importance of the idea that change is always embedded within the constructicon).

With respect to the role of secondary grammaticalisation in a theory of change, this chapter shows that the mechanism of semantic change behind the bidirectional developments, invited inferencing, is the same as what happens in change in general; it is not associated with any particular stage of development. This chapter also provides a principled way of accounting for bidirectional developments and proposes that in conceptualising change, different degrees of schematicity have to be considered.

A brief discussion of terminology is in order before the data and analysis are presented. The classification of modality assumed throughout this thesis is the traditional, tripartite one (dynamic, deontic and epistemic; Palmer 1990; Verstraete 2001; Traugott & Dasher 2002). What is meant by 'deontic' here conflates what van der Auwera & Plungian (1998: 81) designate as 'participant-external' and 'deontic', the latter of which concerns specifically "social or ethical norms" and is a subtype of the former (for a comparison of different classification schemes, see Narrog 2016b: appendix I). The definition of modality is taken to be based on 'factuality': it marks a proposition as "being undetermined with its factual status" (Narrog 2012b: 6; see also Narrog 2005 a, b). What is especially relevant here is a subtype of deontic modality, teleological modality, which according to Narrog (2012b: 8), marks a

proposition as "a necessity or possibility with respect to someone's goals". It can be used performatively to advise the addressee to do something and modals of teleological modality have been labeled as 'modals of advisability' (Traugott & Dasher 2002; Denison & Cort 2010; Traugott 2016). What is labelled here as 'conditional' here does not refer to 'conditional mood' at all. When something is described as 'conditional', it is intended that it either has the semantics of conditionality, which signals contingency between two propositions, and/or syntactically functions as a connective (e.g. *if*) that connects the protasis (*if*-marked clause, or *p*) and the apodosis (*then*-marked clause, or *q*). Finally, a distinction between conditional protasis and apodosis connectives is made here. The former marks the protasis and is similar to *if*; the latter marks the apodosis and is similar to *then*.

This chapter is structured as follows. It starts off with §4.2 introducing modals and connectives in Chinese. The rest of the chapter is composed of two parts: §4.3 looks at the development of deontic modal *bì* into a conditional connective meaning 'only if', via invited inferencing, while §4.4–§4.5 interprets the development of *bì* from the perspective of diachronic construction grammar, discusses the other direction of development and considers the theoretical implications of bidirectionality.

4.2 Modals and conditional connectives in Chinese

Although modals and protasis connectives in Chinese have been treated as two different categories in the literature, this section shows that the distinction between them is not consistently clear in Chinese, which characterises the bidirectional developments examined in this chapter and Ch. 5.

Chinese modals typically occur immediately after, but not before subject (Li & Thompson 1981), while protasis connectives can be pre- or post-subject.[2] In Old

[2] 'Subject' and 'modal auxiliary' have been defined with respect to each other in the literature (e.g. Shi 2000: 390 uses pre-modal-auxiliary position to define 'subject' and Li & Thompson 1981: 174 use post-subject position to define 'modal auxiliary'). This thesis does not intend to challenge this circularity or shed any new light on the position of 'subject' or

Chinese, as in Present-Day Chinese (PDC), a pair of zero-marked clauses can be interpreted conditionally, but both the protasis and apodosis can also be marked by connectives (Chou 1961; Herforth 1994; Pulleyblank 1995; Eifring 1995; Li & Thompson 1981). For example, in (1) *bì* 'only if' marks the protasis, while *ránhòu* 'therefore; then' marks the apodosis.

(1) 必壤地美然後草木碩大

bì	rǎngdì	měi	ránhòu	cǎomù	shuòdà
only.if	farmland	beautiful	then	vegetation	great

'Only if the farmland is fertile will the vegetation thrive.'

Hánfēizi (Late Classical Chinese)

There are three properties in Chinese that blur the line between modals and protasis connectives: positional flexibility, pro-drop and lack of word class distinction. Modals and protasis connectives in Chinese overlap in terms of position in that both can be occupy the same post-subject position. As a topic-prominent and pro-drop language (Li & Thompson 1976), Chinese omits arguments easily, which makes a modal and a protasis connective with a zero subject resemble each other. This is schematised below (where CON specifically represents conditional protasis connectives).

'modal auxiliary'. Even though it has been noted that modal auxiliaries can be pre-subject (e.g. Lin & Tang 1995; Shi 2000: footnote 12), some of them have also been argued to be *adverbs* rather than *auxiliaries* (Huang 2009). This thesis simply follows the tradition of scholarship in taking the order 'subject + modal auxiliary' as given (see also Wang 1944 and Li: 2003: Ch. 4 for a review). Within such a tradition, Wang (1944) has identified *bì* as a modal auxiliary (see also Li: 2003 App. 1 for a summary).

(2) **Connective word order:**

[CON (SUBJ) VP] or [(SUBJ) CON VP]

Modal word order:

[SUBJ (MODAL) VP]

Combined effects of positional flexibility and pro-drop:

[(SUBJ) MODAL VP] is superficially similar to

[(SUBJ) CON VP] or [CON (SUBJ) VP];

[(SUBJ) CON VP] and [CON (SUBJ) VP] is superficially similar to

[(SUBJ) MODAL VP]

(2) shows that in null-subjects a modal and protasis connective may resemble each other, as their positions with respect to the null subject are underdetermined.

A modal can co-occur with a protasis connective withtin a protasis. That is, CON (SUBJ) MODAL and (SUBJ) CON MODAL are possible sequences in which they can be clearly distinguished. However, there is evidence that they do not tend to co-occur. In other words, a protasis marked by a protasis connective is usually not modalised. In the Sinica Corpus of Old Chinese, there are 1899 tokens of the protasis connective *ruò* 'if' (the most common one of its kind in Old Chinese), but only 64 of them (3.4%) contain modals.[3] In the Sinica Corpus of PDC, there are 9064 tokens of the protasis connective *rúguǒ* 'if' (again, the most common of its kind), but only 694 (7.7%) are modals.[4] This suggests that typically modals and connectives are not distinguished in the protasis, even though they can be. Collostructional analysis, which measures the degree of attraction between lexemes and constructions (e.g. Stefanowitsch & Gries 2003; Gries & Stefanowitsch 2004; Hilpert 2013), also indicates that most modals are not attracted to the conditional protasis. Tables 4.1 and 4.2 summarise the results. They divide modals into two

[3] Because *ruò* has multiple meanings, to ensure only the connective meaning was counted, only *ruò* tagged as 'C' was queried for. Modals counted here are tagged as 'VM' in the corpus. But as many atypical expressions are tagged as VM, OC modals in this thesis are defined by what has been proposed as protytipcal modals (Li 2016: 174).

[4] Modals in this corpus do not have their own tag; the modals being counted here follow the list of modals by Li & Thompson (1981: 182–183).

groups: those that are attracted to the MODAL slot in the protasis marked by *ruò* in OC and the protasis marked by *rúguǒ* in PDC and those that are repelled from it. They also rank the modals by their collostructional strength (labelled as CollStr, here a log-transformed *p* value), which is a measure of how likely a modal is to be attracted to, or repelled from the MODAL slot of the protasis. The attraction (or repulsion) is highly significant if CollStr > 1.3. '*n*' represents the raw frequency of a modal in the protasis marked by *ruò* or *rúguǒ*.

attracted		**repelled**	
Modal (n)	**CollStr**	**Modal (n)**	**CollStr**
能 *néng* 'can' (33)	5.34	可 *kě* 'can' (10)	1.76
獲 *huò* 'get/can' (1)	1.31	必 *bì* 'must' (9)	1.24
克 *kè* 'can' (2)	1.20	當 *dāng* 'should' (1)	0.18
得 *dé* 'get/can' (8)	0.76	可以 *kěyǐ* 'can' (0)	
		難 *nán* 'cannot' (0)	
		足 *zú* 'can; suffice' (0)	

Table 4.1 Collostructional strength of attraction between modals and the *rúguǒ* protasis in OC

attracted		repelled	
Modal (n)	**CollStr**	**Modal (n)**	**CollStr**
能 *néng* ‘can’ (421)	96.05	會 *huì* ‘will’ (21)	77.52
能夠 *nénggòu* ‘can’ (138)	62.71	可以 *kěyǐ* ‘can’ (76)	10.69
肯 *kěn* ‘be willing’ (6)	0.70	必須 *bìxū* ‘must’ (14)	8.89
		該 *gāi* ‘should’ (1)	6.40
		得 *děi* ‘should’ (5)	4.33
		必要 *bìyào* ‘must’ (3)	1.05
		敢 *gǎn* ‘dare’ (9)	0.97
		應當 *yīngdāng* ‘should’ (0)	
		應該 *yīnggāi* ‘should’ (0)	
		必得 *bìděi* ‘must’ (0)	

Table 4.2 Collostructional strength of attraction between modals and the protasis *ruò* in PDC

Tables 4.1 and 4.2 suggest that only *néng* and *nénggòu* are significantly attracted to the MODAL slot of a condidtional protasis, while most modals are not attracted. Therefore, in general, modals and protasis connectives are unlikely to co-occur. In other words, even though CON (SUBJ) MODAL and (SUBJ) CON MODAL are possible sequences in which CON and MODAL can be distinguished from each other, these

sequences are rare and modals and connectives are not typically distinguished in the protasis.[56]

So far, two points suggest that the distinction between modals and protasis connectives is not consistently clear. First, they have overlapping positions, especially in null-subject contexts. Second, even though they can be distinguished from each other, such contexts (i.e. modalised protases) are rare.

Qualitatively, Chinese modals and connectives also lack strong category-specific properties. Li & Thompson (1981: Ch. 5) list eight properties of modals, but none of them uniquely distinguishes modals from other parts of speech. For example, a modal can occur be negated by the negator *bù* 'not' (e.g. *bù néng* 'cannot') and appear in the construction [MODAL *bù* 'not' MOAL] to form a polar question (e.g. *néng bù néng* 'can…?'). However, verbs also possess these two properties (Li & Thompson 1981: Chs. 12 & 18). The other six properties are: it can co-occur with a verb; it cannot take any aspect marker; it cannot take any direct object; it cannot be pre-subject; it cannot be modified by intensifiers; it cannot be

[5] Even though it is not the aim of the chapter to explain why *néng* and *nénggòu* pattern differently from other modals within the protasis, a brief speculation is as follows. Both *néng* and *nénggòu* have predominantly dynamic senses (see Li 2003: 223–224 and 243–245), especially that of ability ('be able to'). It is possible that such modals tend to occur in the protasis more, as Verstraete (2001: 1519) points out that dynamic modals "occur unproblematically in the protasis", citing Palmer (1990: 179–190), whereas the distributions of deontic and epistemic modals within the protasis are more restricted. The explanation that Verstraete (2001) provides is that both the dynamic modals and the conditional protasis are typically not performative (however, the whole conditional sentence, i.e. the protasis and apodosis, can be; see §4.3.4.3). However, non-dynamic (i.e. deontic and epistemic) ones can be performative (but are not necessarily so), especially epistemic ones, so they are less compatible with the protasis. Finally, in addition to their difference in (non-)performativity, dynamic modals are qualitatively different from non-dynamic modals in other respects (e.g. Gisborne 2007). Therefore, it is not unexpected that their distributions within the protasis may be different from non-dynamic ones. Indeed, it remains to be explained why not all dynamic modals pattern alike and why, of all dynamic modals in Chinese, only ability ones such as *néng* and *nénggòu* are preferred in the protasis, but not other dynamic modals (e.g. *gǎn* 'dare') or even ones that may have ability readings (such as *kěyǐ* 'can'; Li 2003).

[6] Many disyllabic words in PDC including modals are the univerbation of two historically monosyllabic words. This is known as 'disyllabification'. See Duanmu (2000) and Feng (2002). For example, *bìxū* 'must', *yīnggāi* 'should' and *kěyǐ* 'can' are modals in PDC (Li & Thompson 1981; Table 4.2), but their origins in Pre-PDC are actually distinct monosyllabic modals (e.g. *bì*, *yīng* and *kě* are modals in OC; Table 4.1).

nominalized. However, protasis connectives have all but one of these six properties (protasis connectives can be pre-subject), and many parts of speech also cannot be pre-subject (e.g. sentence-final particles and most adverbs; Li & Thompson 1981: Chs. 7 & 8). With respect to protasis connectives, Eifring (1995: 54 – 55) propose two properties that distinguish them and some adverbs from other function words: they can be immediately followed by the verb of saying, *shuō* (without changing their semantics) and the pause particle, *ne*. However, modals can also be followed immediately by *shuō.* The likelihood of a protasis connective immediately preceding *ne* is very low. Only one such instance, *rúguǒ ne*, is found in the Sinica Corpus of PDC, and *rúguǒ ne* has a mutual information value of -1.84 (this is calculated automatically by the copurs), suggesting that such a collocation is very unlikely.

In sum, the distinciton between modals and protasis connectives in Chinese is not consistently clear. The only context where it is, the modalised protasis, is rare. This is unlike English, where the distinction between modal auxiliaries and connectives is clearer: the former, but not the latter, stands in paradigmatic relations with other auxiliaries and tensed verbs, and undergoes subject-auxiliary inversion. In constructional terms, there are consistently well-defined, non-overlapping constructional slots specific to modal auxiliaries and connectives in English, which Chinese lacks (see more discussion in §4.4.5).[7]

Positional flexibility, pro-drop and lack of word class distinction are not specific to connective and/or modal constructions in Chinese. They are properties of the Chinese 'constructicon', i.e. the network of constructions of varying degrees of schematicity (Fillmore et al*.* 1988; see Barðdal & Gildea 2015 for a review). Pro-drop is a global property of Chinese (Li & Thompson 1976). Adverbs can be pre- or post-subject, too (Biq & Huang 2016: 332). Li & Thompson (1981) classify adverbs into 'movable' and 'unmovable' ones, the former of which can occur in pre- or post-subject position, like protasis connectives. Li & Thompson (1981) also remark that 'movable' adverbs are sentential adverbs, scoping over the whole sentence; such

[7] Note, however, the so-called Germanic verb-first conditionals (e.g. *should it rain tomorrow, we will not go out*) suggest that the distinction between modal auxiliaries and connectives is not absolute (see also Breitbarth 2019).

adverbs therefore are not unlike conditional connectives in terms of position and scope. The fuzzy boundary between modals and connectives also follows from the general lack of consistent word class distinction in Chinese (e.g. Chao 1968; Bisang 2004, 2010). Assuming word classes as construction-specific (e.g. Croft 2001; Diessel 2019), this means that Chinese in general lacks slots or constructions that distinguish word classes. These three global properties therefore motivate fluidity between modals and conditional connectives.

4.3 Development of *bì* 'must' into 'only if'

The entire §4.3 lays down the groundwork for §4.4, which interprets invited inferencing from a diachronic constructional perspective. §4.3.1–§4.3.2 sets the scene for the main analysis of §4.3 by introducing data sources, scope of investigation and the history of *bì.* §4.3.3 discusses the Invited Inferencing Theory of Semantic Change. §4.3.4 introduces notions such as teleological modality, speech act conditionals and the speech act of *advise*. §4.3.5 hypothesises three conditions that are contexts where *bì* developed from a teleological modal of necessity to a conditional connective meaning 'only if', via the indirect performance of *advise*. §4.3.6 tests the three conditions against the data. §4.3.7 considers the result of the invited inferencing. §4.3.8 summarises.

4.3.1 Sources of data and scope of investigation

Most data cited in this chapter came from the *Chūnqiū* (ca. 771–476 BC) and *Zhànguó* (ca. 475–221 BC) sections of the CCL Corpus, both of which constitute Classical Chinese (e.g. Pulleyblank 1995). Precise dating is often controversial at such an early stage; therefore, the CCL Corpus' periodisation will be retained here. Data are labelled as either Early Classical (*Chūnqiū*) or Late Classical Chinese (*Zhànguó*).

The scope of investigation is restricted to instances of *bì* with a connective in a following clause. When querying in the corpus, the following formula was used to find conditional *bì* and potential cases of modal *bì* used conditionally: *bì* + $20 +

connective, in which $20 indicated the maximum number of characters allowed to intervene between *bì* and the connective was twenty (this is the corpus' inbuilt search function). A character in Classical Chinese typically represents a monomorphemic word (see for example, Packard 2000: 67–68; Sun 2006: Ch. 3, citing Norman 1988); therefore, twenty characters amount to twenty words. Twenty was an arbitrary decision; however, most cases of modal *bì* used as conditional *bì* extracted were not separated from the relevant connective by more than ten characters, which suggested that twenty was likely large enough. The connectives extracted were 而 *er,* 而後 *er hòu*, 乃 *nǎi*, 然後 *ránhòu,* 焉 *yān* and 則 *zé*. They may mean '(and) then' in the temporal or conditional sense (they may also function as metatextual connectives that mean 'therefore'). Minor differences between them are unfortunately not our focus (for more, see Chou 1961; Herforth 1994; Pulleyblank 1995; Ota 2003). From now on, they will be referred to as (*and*) *then*.

As the central focus of this thesis is to argue for a diachronic constructional account of some late-stage grammatical developments, the details of the history beyond Classical Chinese will not be discussed here. Finally, it is plausible that conditional *bì* 'only if' also arose from other syntactic contexts or other modal readings of *bì* 'must'. Kuo (accepted a) mentions some possibilities and considers an alternative proposal that conditional *bì* 'only if' developed from epistemic *bì*, ultimately concluding that the analysis presented here is the most likely one.

4.3.2 A brief history of *bì*

Bì is a necessity modal. It is attested in both deontic and epistemic senses in Pre-Classical Chinese. (3)–(5) exemplify pre-classical *bì*, extracted from the only pre-classical section of the CCL Corpus, *Zhōu* (ca. 1046–771 BC). In (3), it is deontic, similar to *must* that expresses obligation. In (4) it is a present-oriented epistemic modal, akin to epistemic *must*, but in (5) it is future-oriented, comparable to 'certainly will'.

(3) 取妻如之何?必告父母

qǔ qī rúzhīhé **bì** gào fùmǔ

marry wife what.to.do must tell parents

'What to do when marrying a wife? One must tell one's parents.'

(4) 何其久也?必有以也

hé qí jiǔ yě, **bì** yǒu yǐ yě

why so long PRT must have reason FP

'Why has it taken them so long? They must have a reason.'

(5) 國必亡

guó **bì** wáng

country must ruin

'The country certainly will be ruined.'

Classical Chinese inherits these pre-classical uses of *bì*. Moreover, *bì* in Classical Chinese, but not in Pre-Classical Chinese, can function as an exclusive conditional connective, meaning 'only if', either in pre-subject or post-subject position. This positional flexibility is a general property of conditional connectives (§4.2). *Bì* in post-subject position may be vague between a modal and a conditional connective, but *bì* in pre-subject position is clearly a connective, such as (1) and (6).

(6) 必民乐其政也，而令乃行

bì mín yuè qí zhèng yě ér lìng

only.if people like 3PS government FP and command

nǎi xíng

then implement

'Only if the people like their government can their commands be implemented.' *Guǎnzi* (Late Classical Chinese)

(6) forms the starting point of our investigation. We aim to explain how modal *bì* gave rise to an example like (6); or in other words, identify under what kind of conditions modal *bì* could be interpreted as 'only if'.

Note that there is no one lexeme in English whose semantics is 'only if', even though *if* can invite inferences of *only if* ('conditional perfection'; Geis & Zwicky 1971; van der Auwera 1997). However, the semantics of conditional *bì* discussed here is 'only if', not 'if'. To distinguish 'only if' from a 'plain' conditional 'if', 'only if' will be labelled as 'exclusive' conditional 'only if', where relevant. *Bì* is not the only lexeme with the semantics of exclusive conditionality. van der Auwera (1997: 175) notes that PDC *zhíyǒu* is 'only if'; Classical Chinese *wéi* in (7) is also an exclusive conditional connective, according to Ota (2003: 310-311), who draws a parallel with PDC *zhíyǒu* 'only if'.

(7) 唯母為後而子為主，則令無不行

wéi mǔ wéi hòu ér zi wéi zhǔ zé lìng
only.if mother become queen and son become king then command
wú bù xíng
NEG NEG implement
'Only if the mother has become a dowager queen and the son the king (i.e. only if the current king dies) will there be no commands that cannot be implemented.'

Hánfēizi (Late Classical Chinese)

4.3.3 The Invited Inferencing Theory of Semantic Change

The Invited Inferencing Theory of Semantic Change (IITSC; Traugott & Dasher 2002; Traugott 2003, 2018a) hypothesises that new semantics emerges out of what was pragmatic inferences. The principle behind the IITSC in a nutshell is that "Speakers communicate with Addressees and may implicate more than is said; Addressees respond to Speakers and may infer more than was said" (Traugott 2018a: 23; see also Traugott 2010 for an overview). More specifically, inferences are distinguished

into two kinds in Traugott & Dasher (2002: Ch. 1.2.3): invited inferences and generalised invited inferences. Invited inferences follow naturally from speech without much prior conventionalisation. Invited inferences are hypothesisied to be crosslinguistically constant. Traugott & Dasher (2002: 17) mention that the logical fallacy, *post hoc ergo propter hoc* 'after this, therefore because of this' may be a universal inference 'because of X' from 'after a time later than X'. On the other hand, generalised invited inferences, corresponding to 'generalised conversational implicature' in the Gricean sense (Grice 1989), are more conventionalised in that they are commonly "exploited to imply/insinuate certain meanings" (Traugott & Dasher 2002: 16). The distinction between these two types of inferences is one between token and type inferential meanings. The invited inferencing process hypothetically proceeds from 'invited inference', via 'generalised invited inferences', to 'semantics (coded meaning)' (Traugott & Dasher 2002: Ch. 1.3.2).

The development of conditional *bì* will also be characterised as invited inferencing. The hypothesis is that in uttering modal *bì* the speaker sometimes intends more than saying that some proposition is necessary. They may invite the addressee to infer that there exists a conditional relationship between the modalised proposition *p* and a following one, *q*, and that *p* is the necessary precondition for *q* to be true. This will be shown to be most salient in the context of indirect *advise*, where invited inferences are generalised: when the speaker offers a piece of advice using teleological *bì* and another clause (i.e. *bì p and then q*), they may be taken to utter the speech act conditional form, *only if p*, *q*, to perform the same indirect act.

4.3.4 Teleological modality, speech act of *advise*, and speech act conditionals

This section briefly defines teleological modality, indirect *advise* and speech act conditionals to set the scene for subsequent discussion and analysis.

4.3.4.1 Teleological modality

According to Narrog (2012b: 8), teleological modality marks a proposition as "a necessity or possibility with respect to someone's goals" and frequently shares the same formal expression with deontic modals of necessity. In some studies on modality, such as Palmer (1979) and Coates (1983), there is no specific label for teleological modality; it is subsumed under deontic modality (see also Narrog 2012b: App. 1 on different classifications).

In English, teleological modality is also frequently expressed by deontic modals and the goal that teleological modality pertains to is inferred contextually. For example, Portner (2009) and Narrog (2012b) provide the following examples of teleological necessity, marked by *must*, in which the clause-initial brackets bring out the goal in each sentence, i.e. what *must* is necessary relative to (brackets original).

(8) (To get to my house) you must take a ferry. (Portner 2009: 36)

(9) (Given your musical taste) you must have this CD. (Narrog 2012b: 8)

Bì in Classical Chinese can also mark teleological modality, and the goal it pertains to is inferred contextually in another clause. For example, the first clause in (10) has a goal 'do well' and *bì* marks *li qi qi* 'sharpen their tools' as necessary with respect to it.

(10) 工欲善其事,必先利其器

gōng	yù	shàn	qí	shì	**bì**	xiān	lì
tradesperson	want	do.well	3PS	work	must	first	sharpen
qí	qì						
3PS	tool						

'(If) a tradesperson wants to do well, they must sharpen their tools.'

Kǒngzǐ (Early Classical Chinese)

As teleological modality typically has no distinct formal expression, it may be one of the many available inferential and typically deontic modal meanings in a given modal expression (e.g. Portner 2009; Narrog 2012b). This chapter takes teleological meaning to be part of *bì*'s pragmatics, i.e. only inferable from its context and a general semantics of deontic necessity. It then follows that as far as *bì* is concerned, teleological modality is a subtype of deontic necessity. These assumptions are not controversial. In Kratzerian formal semantics a necessity modal has a general semantics, with context being the determinant of its specific modal meaning, teleological or otherwise (Portner 2009). In the functional tradition, two or three main modal categories are widely recognised ('dynamic/root', 'deontic', and 'epistemic'; e.g. Palmer 1979, 1990; Coates 1983; Traugott & Dasher 2002). While semantic polysemy may characterise these frequently overlapping categories (Sweetser 1990), finer shades of modality, such as teleological modality, are in principle attributed to pragmatics and recognised as subcategories (Traugott & Dasher 2002; Narrog 2012b). Note that teleological *bì* is less likely to be a subtype of epistemic *bì*. The former, as exemplified in (10) is 'agent-oriented' in the sense of Bybee et al. (1994): the agent has the necessity to perform an action. This is different from 'epistemic' or 'speaker-oriented' modality, which expresses the speaker's epistemic judgement that something must be the case.

Instead of saying 'you must *p*', teleological modality assumes that the addressee has some goal *q* to achieve, and that to achieve it, *p* is necessary. It is therefore like *advise*: it tells the hearer to do *p if* or *given q*. As is clear from this characterisation of teleological modality, it also has much in common with conditionality. This is especially the case when the goal *q* is linguistically expressed and co-occurs with teleological modals.

4.3.4.2 Speech act of *advise*

Throughout the thesis, speech acts are referred to metalinguistically using italics. For example, when a speaker advises someone, it will be said that the speaker performs *advise* or it is an act of *advise*.

In Searle (1979), *advise* is identified as a type of directive. Directive speech acts, broadly speaking, "are attempts… by the speaker to get the hearer to do something", which "may be very modest" (Searle 1979: 13), such as *advise*. Some directive expressions with a stronger illocutionary force than *advise* include *request*, *order* and *command*. Of the speech act *advise*, Searle (1969: 67) says "[advising] you is not trying to get you to do something in the sense that requesting is. Advising is more like telling you what is best for you". He also identifies the following conditions that make *advise* felicitous (taken and reformatted from Searle 1969: 67):

> **Propositional content condition**: the advised act is a future action of the hearer.
> **Preparatory conditions**:
> 1. S[peaker] has some reason to believe A (the advised act) will benefit H[earer].
> 2. It is not obvious to both S and H that H will do A in the normal course of events.'
> **Sincerity condition**: S believes A will benefit H.
> **Essential condition**: the act counts as an undertaking to the effect that A is in H's best interest.

Directives and deontic modals have much in common: they are future-oriented, can impose various degrees of obligation on the hearer and suggest the speaker's desirability for what the hearer should do (e.g. Bybee et al. 1994; Traugott & Dasher 2002; Portner 2009). However, this does not mean deontic modals and directives are identical. Deontic modals, when not used performatively, can be purely descriptive; they can simply describe obligations without imposing them (Hengeveld 1988; Palmers 1990; Verstraete 2001). Even if they are used performatively to direct the hearer's future action, the acts they perform are at best

'indirect speech acts' (Searle 1979: Ch. 2).[8] The speaker, when using deontic modals, cannot be taken to mean that they categorically *request*, *order* or *advise*, only that they do so indirectly.

The speech act *advise* might be more like deontic modals than other directives such as *request* and *command* in terms of its weaker directive force. In fact, it might even be weaker than some deontic modals. According to Searle's definition of *advise*, it does not impose on the hearer, but deontic modals of necessity with stronger modal strength such as obligatory *must*, which imposes obligations (see Traugott & Dasher 2002 and Coates 1983 on modal strengths), seem to carry a stronger illocutionary force that actually more directly "gets the hearer to do something" (Searle 1979:13). Thus, we might say that *advise* is more hearer-oriented than other directives in that the hearer's interest is essential to its felicity conditions (see the preparatory, sincerity and essential conditions above) and can often be coded by teleological modals, as the latter modalises the advised act as necessary with respect to some goal (see also Traugott & Dasher 2002; Denison & Cort 2010; Traugott 2016, who label what has been identified as teleological modals here as 'modals of advisability' or describe their *advise* functions).

Advise, teleological modals and conditionals have much in common. They are not strong directives: neither *advise* nor teleological modals say 'what you *must* do' outright, but 'to achieve *q*, which is presumably what you would want to do, you *must* do'. Or using Searle's preparatory condition for *advise*, *given* 'what I believe benefits *you*'. As is clear from the meaning characterisations of *advise* and teleological modals, they can be easily associated with conditional expressions such as *if* and *given*.

[8] The distinction between 'direct' and 'indirect' speech acts is not without problem, on which there is much literature (e.g. Wierzbicka 1991; Huang 2007). This issue is not dealt with here; it is assumed that 'direct' means 'most conventionalised' and 'indirect' means 'less so' and they are gradient (see also §4.5.1 for a cognitive interpretation of indirect speech acts). There is therefore possible diachronic movement from 'indirect' to 'direct' (see also Mauri & Sansó 2011 for such movements in various languages).

4.3.4.3 Conditionals as speech acts

Akatsuka (1992, 1997) argue that the most basic interpretations of conditionality are based on '(un)desirability', rather than knowledge about the real world. For her, conditionals are used to regulate the addressee's behaviour through expressing the speaker's desire for what should or should not be done. It is most apparent in Japanese, where conditional constructions are used performatively to express deontic meaning. The following are such examples: indirect permission and obligation expressed conditionally (from Traugott & Dasher 2002: 150, ultimately from Akatsuka 1992:7).

(11) Aa, tabe-*temo* ii yo.
Yeah, eat-even:if good FP
'Yeah, it is alright even if you eat/Yes, you may eat.'

(12) Tabenaku-*tewa* ikenai.
eat:NEG-if no:good
'You must eat.' (lit. If you do not eat, it's not good)

Akatsuka demonstrates that conditionals can be much more speech-act-oriented than traditionally thought: they are grounded in the speech situation in which the speaker tries to influence the addressee.

Sweetser (1990) also includes 'speech act conditionals' in her typology of conditionals. Her examples include a conditional statement and a conditional question.

(13) If I may say so, that's a crazy idea.

(14) If it's not rude to ask, what made you decide to leave IBM?

For Sweetser, the *if* clauses are all metalinguistic because they are "overt statements of the sort of general appropriateness-conditions" (Sweetser 1990: 118). For example, a statement like *that's a crazy idea* in (13) would be considered

as appropriate typically only if the speaker has the hearer's permission to make it and a question like (14) can only be asked felicitously if it is not rude.

Sweetser's examples are different from Akatsuka's in that they do not as obviously 'regulate' addressee behaviour. However, they also highlight the interactive and performative dimension of conditionality: they can be part of speakers' speech acts. In terms of illocutionary force, uses of teleological *bì* are especially close to (11) and (12) because *bì* indirectly performs *advise*, which is also about influencing the addressee and desirability, following Searle (1967).

4.3.5 Three hypothesised conditions for conditionality

Three conditions are hypothesised to cluster together in inviting conditional inferencing in *bì*. They can be mutually dependent.

Condition I:	*q* is understood as a desirable 'goal'.
Condition II:	*p* is read as a necessary condition in realising *q* in *p and then q*; conceptually *p* and *q* are construed as conditionally related.
Condition III:	*bì* is read as teleological and scoping over *p* but not *q.*

Given the original modal meaning 'must *p* and then *q*' and these conditions, the speaker can be taken to advise indirectly the addressee to do *q* after *p* ('you must *p* and then *q*'), and this indirect speech act of *advise* can invite inferences of conditionality ('only if you *p* can you *q*'). What enables this inferencing is the fact that both teleological modals and conditional sentences can carry the same indirect illocutionary force of *advise*. When a goal is linguistically expressed in conjunction with teleological *bì*, it is possible to interpret the goal *q* and the proposition *p* modalised by teleological *bì* as conditionally related and as the speaker's indirect performance of *advise*.

More specifically, how the three conditions correlate with *advise* and conditional readings of *bì* is as follows:

Condition I:

When *q* is a desirable goal, it is assumed that the addressee wants to achieve it because its realisation benefits them, and the speaker intends to advise the addressee on how to achieve it, given the Gricean cooperative principle (Grice 1989) and Searle's (1969) characterisation of *advise*.

Condition II:

Not only does *p* in *p and then q* have to be able to be read as a precondition for *q*, *p* and *q*, independently of the structure *p and then q*, must also have some conceptual asymmetry, so that *p* may be construed a necessary precondition for *q*. Otherwise, it is not possible to construe them as conditionally related.

Condition III:

When *p* is modalised as teleologically necessary and the modal is read as scoping over *p*, but not *q*, i.e. [[*must p*] *and then q*], *q* is the goal that makes *p* teleologically necessary. This implies the realisation of *p* is a necessary precondition for *q*. Or in other words, *bì* can be read as conditional when the necessity of *p* is considered related to *q*: '*p* is necessary in order to achieve a goal *q*' implies 'only if *p q*'. It is less likely to arrive at such a reading if the necessity scopes over both *p* and *q*, because then the necessity would be related to something else in discourse, whether expressed or not (i.e. *must* [*p and then q*] simply says *you must perform p and then q* and does not invite as easily *only if p q*). Even given the possibility of construing *p* as a necessary precondition for *q* (as in Condition II), inferences of conditionality might not arise if the modal scopes over both *p* and *q*. On a wide-scope reading, i.e. [*must* [*p and then q*]], the speaker is more likely to be interpreted as saying '(both) *p* and *q* must be performed' deontically, or '(both) *p* and *q* must be true' epistemically. If so, there is not necessarily any

conditional contingency between *p* and *q*, as both events are construed as symmetrical under one modal force.

Conditions II and III are interrelated in that 'scope' and 'conceptual asymmetry' can be difficult to untangle. In our data, very often there is no morphosyntactic criterion except semantico-pragmatic ones that can be used to determine scope; therefore, it is difficult to say whether the lack of conceptual asymmetry causes the wide scope of *bì* or the latter causes the former.

Note that in Condition III, the modality of *q* in [[*must p*] *and then q*] is typically inferred, but can also be explicitly modalised by a dynamic modal of possibility such as *ké*(*yǐ*) or *néng* 'can' in Classical Chinese. *Ké*(*yǐ*) and *néng* can be characterised more specifically as 'circumstantial' in this context: it marks a proposition as possible 'with respect to some circumstances' (Narrog 2012b: 10). It pragmatically implies either weakly, that the subject has the ability under some circumstances, or strongly, that *only* under some circumstances does the subject have it. In other words, the circumstances uniquely enable the subject. Therefore, *ké*(*yǐ*) and *néng* may further bring out the 'only if' reading in *bì p and then ké*(*yǐ*)/*néng q*, when *q* is read as possible only in the case of *p*.[9] To account for *ké*(*yǐ*) and *néng*, Condition III may be modified as: '*bì* is read teleologically and *ké*(*yǐ*)/*néng* is read circumstantially, with *p* interpreted as the circumstance enabling *q*'. As not all examples in Classical Chinese modalise *q*, the original Condition III will be retained, with the modified one evoked only when necessary. Classical Chinese does not explicitly express modality as often as English, so *q* in translations below may contain additional *can* or *will* whose equivalent is not found in the originals.

To test the hypothesis, consider (15), an online excerpt from a book on lifestyle change.

[9] For more on this aspect of ability modality meaning, see Guo's (1995) characterisation of *néng* as 'contested ability' and Sweetser's (1982) force-dynamic analysis of ability *can* as 'enablement against some potential resisting force'; see also Talmy (1988).

(15) First you must get to the right place in your head, and then you can create the lifestyle to go along with that.
(https://www.today.com/popculture/you-can-change-your-body-change-your-mind-wbna22491126; accessed 20/2/2020)

(15) meets all the conditions: *q* 'you can create the lifestyle…' is a desirable goal, given the target audience (Condition I), *p* 'you must get…' can be read as a necessary step in realising *q* (Condition II), and *must* is teleological and *can* can be understood as circumstantial (modified Condition III). It is teleological because, supposedly, the target audience aims to change their lifestyle and *must* modalises *p* as necessary with respect to lifestyle change. These conditions suggest that (15) advises *q* indirectly, and the invited inference 'only if you get… can you create…' arises. The fact that it is from a book on lifestyle change suggests it is intended and typically read as *advice*, independently of the conditions.

4.3.6 Representative cases of *bì* 'must' > 'only if'

§4.3.6 examines data from Classical Chinese, using the same hypothesis presented in §4.3.5. All the data are dialogical and the speaker and the hearer/addressee are referred to pronominally as *she/her* and *he*/*him*, respectively.

(16) is a representative example that satisfies the conditions. The addressee has been looking for advice on a territory dispute, to no avail; the speaker then recommends him to ask a man and utters (17), in which she implies the man is one of 'the venerable'. Later in the text, the addressee consults the venerable man, which suggests that he acted on the speaker's advice.

(16) 吾聞國家有大事,必順於典刑,而訪諮於耆老,而後行之

wú	wén	guójiā	yǒu	dà	shì,	**bì**	shun	yú
1PS	hear	country	there.is	great	matter	must	follow	LOC
diǎnxíng	ér	fǎngzī	yú	gǒulǎo,		ér	hòu	
penal.code	and	consult	LOC	venerable		and	afterwards	
xíng	zhī							
undertake	3PS							

'I heard that when there's a serious matter in the country, one must follow the penal code and consult the venerable, and then one can take action (on the matter).' *Zuǒchuán* (Early Classical Chinese)

In (16) *p* is 'follow the penal code and consult the venerable' and *q* is 'take action'. (16) can be read as an indirect act of *advise*: it meets all the felicity conditions for *advise* and the speaker does not advise directly, but frames it, in the topic clause, as what she heard must be done in such a circumstance.

(16) also meets the three conditions identified in §4.3.5. *q* 'take action' is a goal of the addressee, given the context (Condition I). Independently of the structure *p and then q*, *p* can be understood conceptually as something one does before *q*; therefore, *p* can be read as a necessary, preparatory step in realising *q* in *p and then q* (Condition II). *Bì* can be read teleologically, relative to *q* and it scopes over *p* alone; that is, [[*bì p*] *and then q*] (Condition III). (16) invites the inference 'only if one follows the penal code… can one take action'. Note that, for this inference to arise, *bì*'s teleological meaning needs to be anchored at *q* (i.e. '*p* is necessary with respect to *q*' implies 'only if *p q*'). A wide-scope reading [*bì* [*p and q*]] where the necessity lands somewhere else is possible, i.e. *'p* and then *q* are necessary, relative to some goal', but does not as easily invite inferences of conditionality.

When saying (16), the speaker can be taken to mean not only *must p and then q*, but also *only if p q*. This is because, even though on the surface she says *must p and then q*, i.e. what must be done before *q*, she actually indirectly advises

the hearer to do *q*, by saying he must do *p* first. This performative meaning can be paraphrased conditionally as 'I advise that you take action: only if you follow… can you take action'. That is, *bì* 'must' *p and then q* can invite 'only if *p*, *q*' because both perform *advise* indirectly.

As described in §4.2, Chinese protasis connectives can be pre-subject or post-subject. This syntactic underspecification allows modals to be interpreted as post-subject connectives. When a modal occurs without any overt subject, as in (16), users may also neoanalyse it as a pre-subject connective. This positional flexibility of connectives and the pro-drop feature of Chinese might set apart its development of modality into conditionality from other languages without flexible connectives and pro-drop, such as English.

Other representative examples include *q* that is modalised by *ké*(*yǐ*), as in (17)–(18). (17) is part of a response from a political advisor to the king after he asks her how to govern properly. Earlier in her response, the speaker says the key is to emulate nature, which cultivates everything, from good to bad, yet still enjoys all the benefits (the implication being that one must bide one's time and follow the normal course of events in order to govern properly). (17) then sums up her earlier response and advises the king that, to enjoy all the benefits in the way that nature does, one must know the universe's rules.

(17) 必有以知天地之恒制,乃可以有天下之成利

bì	yǒu	yi	zhī	tiāndì	zhī	hēngzhì,	nǎi
must	have	LOC	know	universe	POS	law	therefore
kēyǐ	yǒu	tiānxìa	zhī	chēng	lì		
can	have	world	POS	pre-existing	benefit		

'We must know the universe's rules, and then we can enjoy all the benefits already out there in the world (without having to create them ourselves).'

~ 'Only if you know the rules can you enjoy all the benefits.'

Zuǒchuán (Early Classical Chinese)

(18) is a response to the question 'how does one increase the number of the virtuous?' After explaining how to increase the number of good archers and drivers, the speaker says that it is the same with the virtuous.

(18) 亦必且富之貴之,敬之譽之,然後國之良士,亦將可得而眾也

yì	**bì**	qiě	fù	zhī,	guì	zhī	jìng	
also	must	altogether	enrich	3PS	value	3PS	respect	
zhī,	yù	zhī,	ránhòu	guó	liáng	shì	yì	
3PS	honour	3PS	then	county	good	man	also	
jiāng	kě	dé	ér	zhòng	yě			
surely	can	get	and	multiply	FP			

'Also, you must enrich, value, respect and honour all virtuous men and then you can employ them and increase their number (in your service).'

~ 'Only if you also enrich… them can you increase their number.'

Mòzi (Early Classical Chinese)

In both (17) and (18), inferencing of conditionality is possible if our reading meets the conditions: *q* is a desirable goal, *p* is a necessary step in realising *q*, *bì* is teleological and *ke*(*yi*) is circumstantial (modified Condition III). Both examples can be read as advice: (17) advises 'enjoy all the benefits' (=*q*) and says 'know the universe's rules' (=*p*) is necessary for *q*; (18) advises 'increase the number of the virtuous' (=*q*) and says 'enrich… them' (=*p*) is necessary for *q*. These performative meanings can be read in the modal sense (*you must p and then you can q*) and/or the conditional one (*only if you p can you q*), enabling the former to be read as the latter. Note that, independently of the conditions, (17)–(18) are likely to be read as advice, too, as they are responses to requests for advice. Later in the text, the addressee in (18) lets the speaker govern the country in the way described in (18), which suggests that the speaker has followed the addressee's advice.

Finally, Dancygier & Sweetser (1997; 2005) observe that *only if* in English typically connects a discourse-new *p* with a discourse-old *q*, unlike typical

conditionals, in which *p* is typically discourse-old and *q* is discourse-new (i.e. *p* is typically a topic; Haiman 1978). In their examples of *only if p*, *q*, *q* is typically some kind of problem, so they propose that with the use of *only if*, "the speaker is essentially limiting the available options for solving the problem by insisting on the uniqueness of [*p*]" (Dancygier & Sweetser 2005: 207). The use of *bì p and then q* mirrors Dancygier & Sweetser's observation of *only if* as well. In (16)–(18), *p* is discourse-new, conveying what must be done to achieve *q.* On the other hand, *q* is discourse-old, as it rephrases either the content of the addressee's previous question (as in 16 and 18), or part of the speaker's pre-established response to the addressee's question (as in 17). Assuming that the characterisation of *only if*'s discourse-structuring property in English by Dancygier & Sweetser (2005) also applies to comparable expressions in Chinese, what motivates inferences of conditionality in (16)–(18) could also be the fact that the information statuses of *p* and *q* in (16)–(18) resemble those of sentences in Chinese that mean *only if p*, *q*.

In sum, the three conditions facilitate the inferencing of modal *bì* as conditional. The inferencing results from an interaction of teleological modality, conditionality, and indirect *advise*. As a teleological modal pragmatically implies a goal and modalises the proposition as necessary for the goal, it can carry an indirect force of *advise*: it conveys what 'the speaker believes is the best for the hearer'. Similarly, *only if* conditionals can also perform *advise* indirectly. Therefore, when a teleological modal co-occurs with another clause *q* that expresses the goal, the two clauses *p* and *q* can be read as a conditional sentence that also performs *advise* indirectly. That these examples are used to advise politicians (16 and 18) or answer requests for advice (16–18) also suggests that the sequence *bì* 'must'… *then* might have conventionalised to a certain degree and the invited inferences of conditionality might have become generalised.[10]

[10] Kuo (accepted a) also discusses two more datasets. The first consists of negative evidence: the absence of one or more of the conditions can be correlated with the failure of inferences of conditionality to arise. This dataset supports the analysis presented here. The second dataset contains cases where inferences of conditionality do arise, even though not all of the conditions are met. For example, a strong, obligative *bì*, as in *You must brush your teeth and then you can go to bed* (said by a parent to their child) can also invite

4.3.7 Result of the invited inferencing

None of the examples in §4.3.6 is unequivocally a conditional connective because their exclusive conditional reading can be derived inferentially from the contextual meanings of modal *bì*. That is, they constitute what Diewald (2002) calls 'critical contexts' in grammaticalisation in which a new meaning is one of the many possible ones, but it is at best a generalised invited inference, not yet semanticised. This section considers instances of *bì* that are unequivocally conditional, the result of the invited inferencing that semanticised conditionality. They occur in pre-subject position, in which modals typically do not occur, or function as an epistemic conditional that displays a temporal order not expected by the literal reading of *and then*.

The only unequivocal instance of conditional *bì* in Early Classical Chinese from the corpus is (19). It is unequivocal because it is pre-subject. It also performs conditional advice.

(19) 即必吾先從事乎愛利人之親,然後人報我以愛利吾親也

jí	**bì**	wú	xiān	cóng	shì	hū	ài	lì
thus	only.if	1PS	first	undertake	matter	LOC	love	benefit
rén	zhī	qīn,	ránhòu	rén	bào	wǒ	yǐ	ài	lì
people	POS	parent	then	people	thank	1PS	LOC	love	benefit
wú	qīn	yě						
1PS	parent	FP						

'Only if we first take it upon ourselves to love and benefit others' parents will they thank us by loving and benefitting ours.'

Mòzi (Early Classical Chinese)

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inferences of conditionality (*Only if you brush your teeth can you go to bed*). Even epistemic *bì* can also invite inferences of conditionality, which is perhaps unsurprising given van der Auwera & Plungian's (1998) observation about epistemic modality being the source of conditionality. Nevertheless, Kuo (accepted a) argues that the most representative pattern in which there are inferences of conditionality is where the three conditions are met.

In the preceding passages the addressee asks the speaker about filial piety. The speaker responds by first supposing 'others love and benefit our parents' is desirable in general, and then engaging him by asking what 'we should do first to attain this', the implication being it is a kind of filial piety to make 'others love and benefit our parents'. She thus sets up a context in which 'others love and benefit our parents' is a goal whose achievement merits advice. She then advises using *bì* 'only if': the only way to make 'others love… our parents' is through 'taking it upon ourselves to love and benefit others' parents first".[11]

(19) suggests that the hypothesis in §4.3.6 may be correct in attributing conditional *bì*'s origin to conditional advice, as (19) is also one, if we assume, first, the history of *bì* can be reconstructed internally, with data from the same period (§5.3.6 and 20 are from Early Classical Chinese), and second, the grammaticalisation principle of 'persistence' (Hopper & Traugott 2003) can be used for internal reconstruction (i.e. the source structure meaning from which a new expression emerged may persist). These assumptions lead us to reconstruct the origin of conditional *bì* as modal *bì* used for *advise*, because the earliest instance of conditional *bì* also performs *advise*.

More examples of unequivocal *bì* can be found in Late Classical Chinese. (6) is one, reproduced below as (20). It also contains a pre-subject *bì*. It is part of a passage attributed to *Guǎnzi* on how a *rénzhǔ* '(men's) lord; monarch' should govern. It *advises*, rather than *requests* or *commands*, because *Guǎnzi* himself is a statesman, who presumably would not impose on a monarch, given the power relationship between a monarch and his subjects (Shen & Chen 2019).

[11] Classical Chinese pronouns are underspecified for number. The dialogical nature of (19) suggests *wú* means 'we'.

(20) **bì** mín yuè qí zhèng yě ér lìng
only.if people like 3PS government FP and command
nǎi xíng
therefore implement
'Only if the people like their government can their commands be implemented.' *Guǎnzi* (Late Classical Chinese)

Other Late Classical Chinese example suggests that conditional *bì* is not exclusively used to perform *advice*. For example, by uttering (21), the speaker tries to dissuade the addressee from attacking the country Song and provokes him into a military drill, so that she can prove she can fend off any offence from him with her defence techniques, and prevent him from obtaining Song, should him attack it. That is, she intends to say 'You will attack it only if you can obtain it! But you won't because you can't!'

(21) 必得宋乃攻之乎
bì dé sòng nǎi gōng zhī hū
only.if get Song therefore attack 3PS FP
'You will attack Song only if you can obtain it!'
Lǚshì chūnqiū (Late Classical Chinese)

That conditional *bi* no longer only performs *advise* may be described as 'bleaching': the loss of original source meaning (Hopper & Traugott 2003).

(21) is subjectless, thus providing no syntactic evidence for the status of *bì* as a conditional connective. However, functionally, *bì* in (21) is conditional because of the temporal order of *p* and *q*. In all the other cases of *bì*, *p* precedes *q* temporally, as expected by the literal meaning of *and then* in *must p and then q*. However, in (21) *p* (= 'obtain Song') follows *q* (= 'attack Song') temporally. Normally, if one attacks a country, one can obtain it, after defeating it. That is, the 'real-world' causality precedes from 'attacking it' to 'obtaining it', and a typical conditional

statement would then be: 'if you attack it, you (can) obtain it', or 'only if you attack it can you obtain it'. But in (21), the speaker reasons backwards, from 'obtaining it' to 'attacking it': 'only if you (the addressee) can obtain it will you attack it'. This is an example of Sweetser's (1990) 'epistemic conditional': it manifests the speaker's reasoning process that reverses the canonical order with which 'real-world' causality is typically expressed. This is functional evidence that *bì* had become a connective.

Bi's *exclaim* and epistemic uses in (21) are not found in Early Classical Chinese. This suggests that after the semanticisation of *bì* in Early Classical Chinese, it evolved even further in Late Classical Chinese.

4.3.8 Summary

The analysis shows that *bì* 'only if' originates from contexts where deontic *bì* 'must' is used as a teleological modal that performs an indirect act of *advise*. This suggests that deontic necessity can give rise to conditionality, mediated by the performative meaning of *advise*. This analysis thus makes two significant contributions to literature on semantic change in modality. First, van der Auwera & Plungian (1998) have hypothesised that conditionality develops from epistemic possibility and necessity on the basis of verb-first conditionals in Germanic languages, as indicated in the following Dutch example and its English translation.[12]

(22)	Mocht	*ik*	*ziek*	*worden,*	*zoek*	*dan*	*een*	*vervanger*
	might	I	sick	become	search	then	a	substitute

'Should I get sick, look then for a substitute.'

van der Auwera & Plungian (1998:93)

However, van der Auwera & Plungian (1998) do not explicitly remark that deontic necessity might be another source of conditionality. The development of *bì*

[12] However, see Breitbarth (2019) for arguments against the hypothesis that Germanic verb-first conditionals originated from epistemic modals.

therefore refines their semantic map by showing that deontic necessity is also a possible source of conditionality. Second, in an influential paper, Traugott (1985) has pointed out that epistemic modality and the optative are typically the diachronic modal sources of conditionality (there are many non-modal sources; Heine & Kuteva 2002) because:

> "[The] fact that conditionals are about conceivable possibilities […] may directly motivate the use of epistemic modals […] Similarly, the fact that imagined hypothetical worlds are often those that are wished for may motivate the selection of optatives." Traugott (1985: 293)

That is, meaning similarities between modality and conditionality motivate the latter to develop into the former. However, apart from 'conceivable possibilities' or 'non-factuality/irrealis' (e.g. Mauri & van der Auwera 2012), subsequent research has not actually examined in detail what other meaning similarities there are between modality and conditionality that motivate the change.[13][14] The analysis of *bì* shows that performativity is an important meaning similarity that mediates the change from modality into conditionality: both modality and conditionality can be read as performatively equivalent. It will be shown in Ch. 5 that performativity also underlies the development in the opposite direction, from conditionality to modality as well.

[13] Following Traugott (1985), verb-initial conditionals in Germanic languages are the most important strand of the research on how modality gives rise to conditionality (e.g. Byloo & Nuyts 2014). Comparatively little has been done on other languages. Verb-initial conditionals have been argued to be motivated by discourse pressure (Hilpert 2010), or functional similarities with verb-initial polar questions (Harris & Campbell 1995). But such studies typically do not refine Traugott's (1985) proposal by explicitly identifying exactly what other 'meaning similarities' there are between conditionality and modality.

[14] However, note that in the formal literature (e.g. Lewis 1975; Heim 1982; Kratzer 1986), modals and conditionals essentially express the same type of meaning.

4.4 The semanticisation of conditional *bì* from a diachronic constructional perspective

This section considers the invited inferencing analysis in §4.3 from a diachronic constructional perspective. It will be shown that there is actually more than just one single source construction involved in the semanticisation and recognising the multiple source lineage of *bì* 'only if' has implications for theory of invited inferencing in a constructional framework. §4.4.1 represents the constructions involved in the semanticisation and visualises the process. §4.4.2 considers its implications.

4.4.1 Constructions involved in the semanticisation process

Following the process from 'invited inferences', via 'generalised invited inferences' to 'semantics', three stages to the semantic development of *bì*, which overlap with a process of constructionalisation, are proposed here. Henceforth, *bì p*, *then q*, without brackets, is used to represent the sequence meaning 'must *p*, *then q*', without specifying whether it is a construction, while [*bì* 'must' *p*, *then q*] indicates that it is a construction. [*bì* 'only if' *p*, *q*] is used to represent the conditional construction that means 'only if'.

At the initial stage, the sequence *bì p*, *then q* is not a construction; it is sanctioned by the *bì* 'must' and *then* constructions. In the representation below, the *bì p*, *then q* construct therefore is connected by two full links (representing 'inheritance'; Ch. 2.3.1) to the [*bì* 'must' *p*] and [*then q*] constructions. There is no reason to propose that *bì p*, *then q* initially is a construction, assuming Goldberg's (1995) definition, because the sequence *bì p*, *then q* follows compositionally from [*bì* 'must' *p*] and [*then q*].

However, at this stage, invited inferences of conditionality may arise already, in the context of *advise*; therefore, in the *bì p*, *then q* construct, its pragmatics includes the reading of 'only if *p*, *q*' and the performative meaning of *advise*. This pragmatic meaning is an invited inference (i.e. token inferential

meaning; §4.3.3), which allows the construct to be neoanalysed as a [*bì* 'only if' *p*, *q*] construct, sanctioned by a [*bì* 'only if' *p*, *q*] construction. In the representation, an 'inferential' relationship is posited between the *bì p*, *then q* and [*bì* 'only if' *p*, *q*] constructs, represented by a dashed line labelled 'inference'. The boxes representing the [*bì* 'only if' *p*, *q*] construct and construction at this stage are dashed to symbolise that they are hypothetical and a linguist's attempts at reconstructing the history of conditional *bì*. The inheritance link between the [*bì* 'only if' *p*, *q*] construct and construction is also dashed. Probably none of the dashed links and boxes is part of speakers' mental representations yet.

Note that this invited inference between the *bì p*, *then q* and [*bì* 'only if' *p*, *q*] constructs is also motivated by the general lack of formal distinction between modals and protasis connectives, particularly in null-subject contexts: a modal without an expressed subject can be interpreted as a pre-subject or post-subject protasis connective (see §4.2). In the representation, the syntax of the *bì p*, *then q* construct is (SUBJ) *bì p then q* and that of [*bì* 'only if' *p*, *q*] is (SUBJ) *bì p then q* or *bì* (SUBJ) *p then q*, which suggests that the same surface form *bì p then q* can be understood as either the *bì p*, *then q* construct or [*bì* 'only if' *p*, *q*]. What the representation does not show is that morphosyntactic properties are assumed to be inherited. For example, the modal syntax (SUBJ) *bì p* is an inherited property of all modal constructions. It also does not show that modals and protasis connectives do not consistently appear in constructions where they can be uniquely distinguished from each other or other parts of speech (see §4.2 for details).

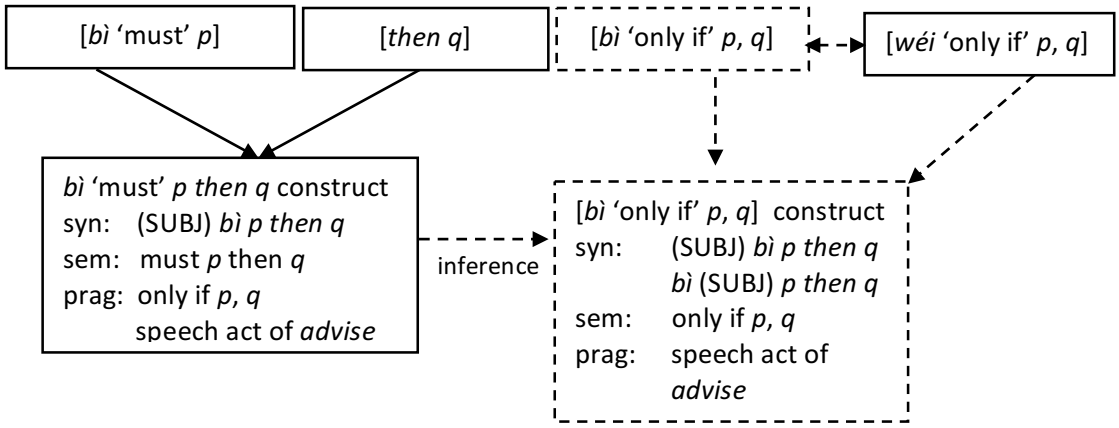

Figure 4.1 Initial stage: invited inferences of *bì p*, *then q* as conditional

Right next to the hypothetical [*bì* 'only if' *p*, *q*] construction is the [*wéi* 'only if' *p*, *q*] construction (see §4.3.2 for *wéi*). The horizontal link between the [*bì* 'only if' *p*, *q*] construction and the [*wéi* 'only if' *p*, *q*] construction symbolises that they share the same semantics, but have different form (see §2.3.1 for horizontal links, which link formally different constructions that share the same semantics). Traugott (2018b: 23), following recent interests in different types of links in diachronic construction grammar, particularly horizontal ones (e.g. Van de Velde 2014), notes that "invited inferences… can be interpreted as providing direct links to more abstract schemas". This means, to unpack this quote, invited inferences from Construct A (such as the *bì* 'must' *p*, *then q* construct) can be modelled as connected to Schema B (such as [*wéi* 'only if' *p*, *q*]) that motivates, analogically, the semanticisation of A as an instance of B's meaning (i.e. the meaning of the *bì p*, *then q* construct as 'only if'). Following this proposal, the *bì* 'must' *p*, *then q* construct is shown to be linked, diagonally, with [*wéi* 'only if' *p*, *q*], to suggest that [*wéi* 'only if' *p*, *q*], along with its horizontal relation with [*bì* 'only if' *p*, *q*], might at this stage serve as an analogical model to neoanalyse the *bì p*, *then q* construct as sanctioned by the [*bì* 'only if' *p*, *q*] construction. The [*bì* 'only if' *p*, *q*] construction and its construct are also shown to have links with the [*wéi* 'only if' *p*, *q*] construction.

At the next stage, the sequence *bì p*, *then q* is hypothesised to have become entrenched as a construction, with a *generalised* invited inference (i.e. type

inferential meaning; §4.3.3) of 'only if' and performative meaning of *advise*. This entails that there must be some properties that distinguish it as a construction. For example, constructions whose indirect speech act functions have been conventionalised can be modified by certain adverbs, while other constructions that may also perform the same speech acts, but have not conventionalised them, cannot. In English, *please* and *kindly* distinguish conventionalised indirect *request* constructions from less conventionalised ones (Stefanowitsch 2003: 111). For example, *can you close the window* instantiates a conventionalised *request* construction headed by *can*; therefore, it is possible to combine it with *please* or *kindly*: *can you please/kindly close the window*. However, even though a construct like *it's cold* may request the addressee indirectly to close the window, it does not instantiate a conventionalised *request* construction, making it ungrammatical, or at least pragmatically odd to say **it's please/kindly cold in here*.

At this stage, constructs of the indirect speech act construction [*bì* 'must' *p*, *then q*] still have not yet shown signs that its semantics is conditionality. The right side of Figure 4.2 therefore does not differ from that of Figure 1. What has changed is that *bì p*, *then q* constructionalised into the indirect speech act construction [*bì* 'must' *p*, *then q*] (in bold in Figure 4.2; compare the "*bì* 'must' *p then q* construct" in Figure 4.1). Sentences from (16)–(18) are hypothesised to instantiate this stage.

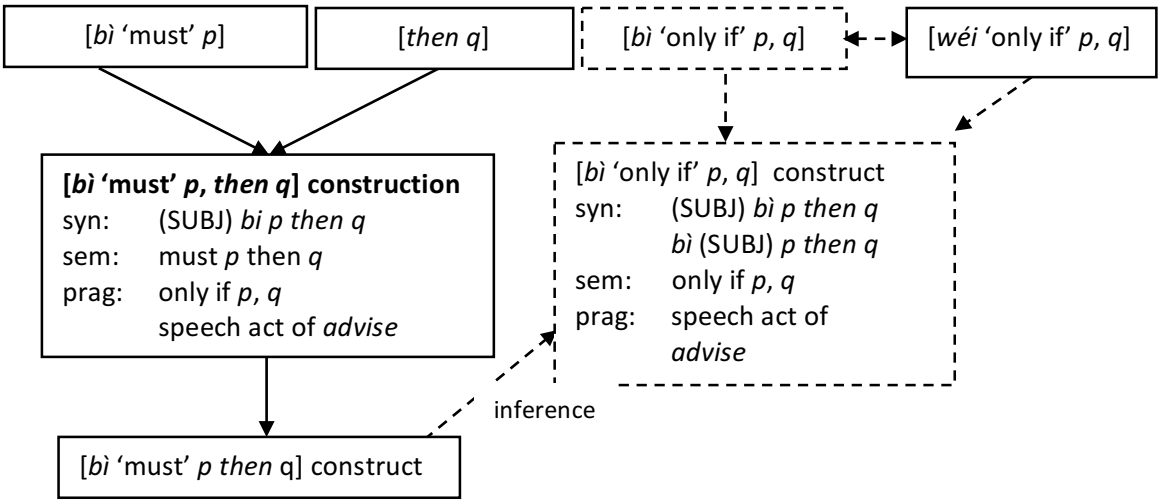

Figure 4.2 Stage two: [*bi p, then q*] as a conventionalised indirect *advise* construction

There is neither enough data nor any native speaker for us to test how 'conventionalised' *bì* 'must' *p*, *then q* or [*bì* 'must' *p*, *then q*] is, at any stage. It is indeed possible that a speaker would analyse *bì p then q* at the initial stage, represented in Figure 4.1, as actually sanctioned by a conditional [*bì* 'only if' *p*, *q*] construction, especially if the speaker is particularly adept at generalisation, without ever storing [*bì* 'must' *p*, *then q*] as a construction. Nevertheless, the following observations suggest that it is not likely to have such a scenario where [*bì* 'must' *p*, *then q*] does not conventionalise first as a construction that indirectly performs *advise* before being neoanalysed as sanctioned by the [*bì* 'only if' *p*, *q*] construction. That is, the change should proceed from Figure 4.1 to Figure 4.2. First, there is no reason to reject the typical invited inferencing process, from 'invited inferences' via 'generalised invited inferences' to 'semantics'. If inferences from the sequence *bì p*, *then q* at the second stage are generalised inferences, following the argument for treating conventionalised indirect speech acts as constructions (e.g. Stefanowitsch 2003; Cappelle & Depraetere 2016; see also Goldberg & van der Auwera 2012 for *is to* as an indirect *command* construction), the sequence should also be a construction. Second, given the little data we have, *bì* that performs *advise* seems to be only found in certain contexts, such as in exchanges between

politicians and their advisors (examples 16, 17 and 20), and especially when advice is solicited (i.e. speakers do not seem to give unsolicited advice using the sequence *bì p*, *then q*; see examples 16–20). This suggests a certain degree of conventionalisation in particular speech act situations, hence the status of *bì p*, *then q* as an indirect speech act construction [*bì* 'must' *p*, *then q*], as represented in Figure. 4.2.

The final stage is where speakers have analysed *bi… then* as sanctioned by the [*bì* 'only if' *p*, *q*] construction, evidenced by sentences (16)–(18) where *bì* can only be interpreted as conditional. The full line in the middle of Figure 4.3 signals the diachronic connection between the pragmatics of the source, [*bì* 'must' *p*, *then q*] construction and the semantics of the target, [*bì* 'only if' *p*, *q*] construction. This connection is a kind of semanticisation (via invited inferencing) intersecting with constructionalisation: what is previously pragmatic in one construction has become semantic in another. Note that semanticisation does not hold between constructs. Constructs are the locus of change in that semanticisation originates from tokens of use, but semanticisation requires conventionalisation (i.e. neoanalysis of invited inferences as generalised and then generalised inferences as coded semantics), which necessarily abstracts over constructs.

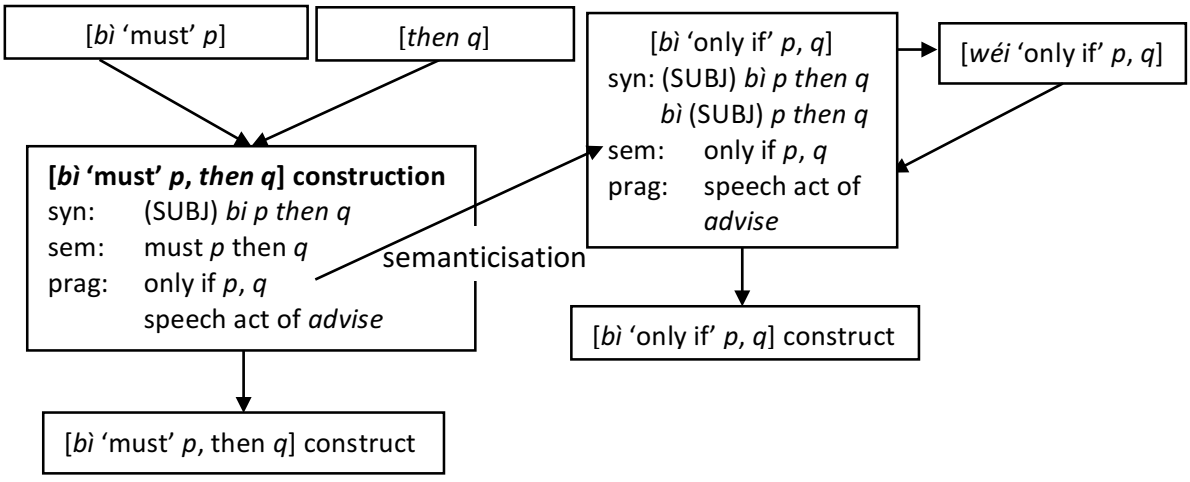

Figure 4.3 Final stage: semanticisation and constructionalisation of *bì*

Finally, after the semanticisation, the performative meaning of [*bì* 'only if' *p*, *q*] has been bleached. The bleaching is also a kind of generalisation in that the function of [*bì* 'only if' *p*, *q*] is no longer specifically characterised by the performance of *advise;* it has been generalised into a conditional connective whose function is more than to perform *advise*. This is represented below, where sentences such as (17) and (18) are hypothesised to be constructs sanctioned by the [*bì* 'only if' *p*, *q*] construction that is more general than its predecessor; its pragmatics is underspecified, while that of its predecessor is specified as *advise*. The dashed link shows 'bleaching': the performative specification in [*bì* 'only if' *p*, *q*] was lost.

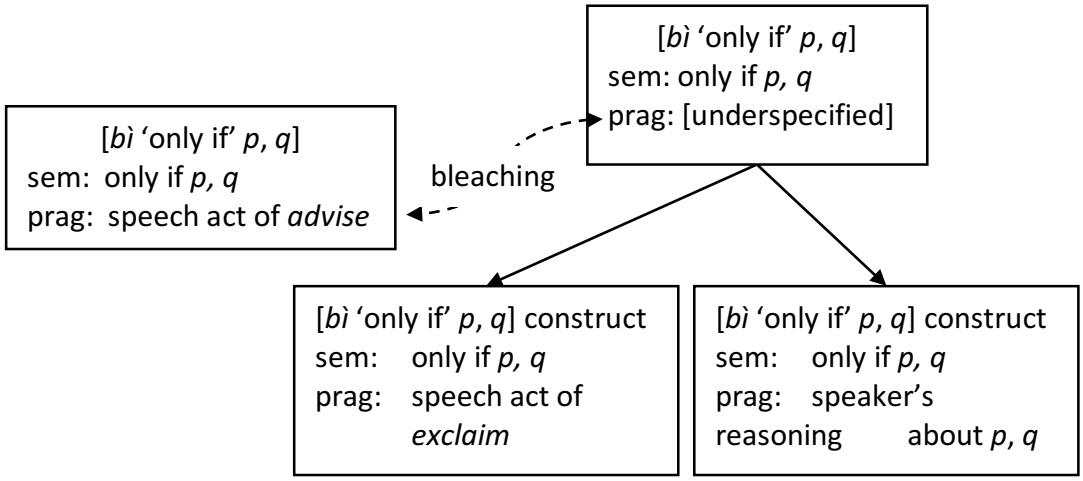

Figure 4.4 Bleaching of performativity in [*bì* 'only if' *p*, *q*]

4.4.2 Secondary grammaticalisation and constructionalisation

It is uncontroversial to associate 'semanticisation' with a kind of constructionalisation in which what is pragmatic in one source construction becomes a target construction's semantics, as proposed in §4.4.1. Gisborne's (2010) Word Grammar analysis of deontic *may*, for example, has suggested that subjectification (a subtype of semanticisation; see Ch. 5) happens not only to lexemes but also constructions, as it may involve argument-linking (see also Gisborne & Patten 2011 for the *it* cleft construction). Smirnova (2015a) identifies

neoanalysis of inferences as one of the processes involved in constructionalisation. This section considers in more detail the implications the analysis presented so far has for theoretical notions such as 'secondary grammaticalisation' and 'constructionalisation'.

'Secondary grammaticalisation' was rejected in Ch. 3 because it is not qualitatively different from grammaticalisation in general. It was also noted that there is no exact correspondence between constructionalisation and grammaticalisation, of which the case of *bì* 'must' > 'only if' is one example. A grammaticalisation interpretation of *bì* 'must' > *bì* 'only if' would interpret it as one single case of grammaticalisation, and possibly a case of 'secondary grammaticalisation' as well. However, a constructional account, as outlined in §4.4.1, suggests that prior to the creation of [*bì* 'only if' *p*, *q*], [*bì* 'must' *p*, *then q*] had constructionalised as well: [*bì* 'must' *p*, *then q*] had become a conventional way of performing *advise* indirectly, which formed the basis of the neoanalysis of it as a conditional construction. This suggests that secondary grammaticalisation cannot be reliably 'translated' into a constructional framework or make predictions in it. The 'cline' of *bì* 'must' > 'only if' actually includes two constructionalisations: the constructionalisation of [*bì* 'must' *p*, *q*] as an indirect speech act construction and that of [*bì* 'only if' *p*, *q*] out of [*bì* 'must' *p*, *q*].

Moreover, Figures 4.1–4.3 show that there is persistence at the level of performativity in the evolution of *bì*. This warrants a fine-grained perspective on language use. Smirnova's (2015a) constructional argument in favour of 'secondary grammaticalisation' (see Ch. 3.5) therefore does not hold, as far as the data considered here go, because it overlooks fine-grained constructional properties such as performativity when they are supposed to be essential to her context-oriented model of constructionalisation. It is hypothesised here that only after a certain degree of 'bleaching', such as that of performativity in [*bì* 'only if' *p*, *q*], can we find robust, cross-linguistic regularities in language change that approximate cline-like representations that are commonly found in traditional grammaticalisation studies. However, bleaching has not been shown to be sensitive

to the grammatical status of the construction that it applies to, and it can only be described with reference to the source construction (therefore, in a way 'bleaching' and 'persistence' are intertwined; Ch. 3.5). Therefore, even though bleaching is a process prevalent in grammaticalisation, it does not provide any basis for the distinction between primary and secondary grammaticalisation.

One might ask what difference 'one grammaticalisation' (i.e. *bì* 'must' > *bì* 'only if') or 'two constructionalisations' (the creations of [*bì* 'must' *p*, *then q*] and [*bì* 'only if' *p*, *q*]) makes. Is it simply a matter of whether one prefers 'lumping' or 'splitting'? One argument in defence of the 'two constructionalisations' scenario is that it yields a more differentiated view that can be tested. If [*bì* 'must' *p*, *then q*] is an indirect speech act construction, as in Figure 4.2, it should have certain qualitative and quantitative properties that qualify it as one. For example, as discussed above, only conventionalised indirect speech act constructions are open to certain adverbial modification. Judgement tests may show the *advise* reading of [*bì* 'must' *p*, *then q*] is more dominant or 'short-circuited' (Morgan 1978), in the sense that even though it is an inference, it is a more likely reading than other types of inferences.[15] Statistical tests may also show that it can be distinguished from other [modal… *then*] sequences (e.g. Hilpert 2008, 2013). Unfortunately, there is no native speaker to consult on [*bì* 'must' *p*, *then q*] or large enough data to test. However, 'splitting' the evolution of *bì* 'must' > 'only if' into constructions does

[15] For using judgements to infer modal constructions, see an interesting paper by Cappelle & Desperaete (2016), who use jokes from the cartoon *The Simpsons* as their source of data. They show that many seemingly 'compositional' modal constructions are actually not that compositional in that, despite the availability of a wide spectrum of modal meaning, they typically only prefer particular shades of meaning. For example, *can* in [NP *can be so* AdjP] where the NP is generic is typically interpreted as circumstantial. *Can* comes across as humorous if read deontically, for example, in the following exchange, where Homer is complaining to his wife Madge about how he was left out by his peers in his childhood (taken from Cappelle & Desperaete 2016: 18):

Homer: I felt so left out.
Marge: Kids can be so cruel.
Bart: [walking by] We can? Thanks, Mom!

matter in that it can provide a different window on *bì*'s history and allow us to refine theory of invited inferencing, to be detailed below.

4.5 Invited inferencing and bidirectionality in diachronic construction grammar

This section briefly introduces a different dataset in which modality develops out of conditionality, which suggests that 'bidirectionality' between modality and conditionality is possible. This raises a question for the grammaticalisation research programme, which has typically proposed that there is *unidirectionality* in semantic change (Traugott & Dasher 2002; see also Davidse et al. 2010, among others). This section also considers what implications the analysis of *bì* and bidirectionality have for both invited inferencing and diachronic construction grammar and the importance of a 'splitting' or 'two constructionalisations' view, as opposed to a 'lumping' or 'one grammaticalisation' one.

Schematic patterns similar to those represented in Figures 4.1–4.3 will also be shown in Ch. 5 to be replicated in the opposite direction of development: from conditionality to modality, which is again mediated by performativity. Very briefly, the sequence *fēi* 'unless' *p*, *q*, with *q* being filled by *bù kě* '(it is) not possible', crystallises into a construction, [*fēi p*, *bù kě*] 'unless *p*, it is not possible' that performs various indirect acts such as *advise*. For example,

(23) 陛下若欲紹述熙豐之政，非用蔡京為政不可

bìxià	ruò	yù	shàoshù	Xīfēng	zhī	zhèng,	**fēi**
lord	if	want	inherit	Xīfēng	POSS	politics	**unless**
yòng	cài	jīng	wéi	zhèng	**bù**	**kě**	
use	Cài	Jīng	do	politics	**not**	**possible**	

'If my lord wants to reinstate the Xīfēng reform, unless he appoints Cài Jīng as an official, it is not possible.' *Zhūzǐ Yǔlèi* (12th–13th centuries)

[*fēi p*, *bù kě*] invites inferences of *fēi p* as 'must *p*'. For example in (23) 'unless he appoints Cài Jīng as an official, it is not possible' may be read as 'he must appoint Cài Jīng as an official' (this corresponds to Figure 4.2). Subsequently, [*fēi p*] is neoanalysed as 'must' (equivalent to Figure 4.3). For example, (24) contains a full clause modalised by *fēi*.

(24) 我非去

wǒ fēi qù

I must go

'I must go.' Wang (2008:109)

The developments of *bì* and *fēi* are summarised below.

Semantic evolution	*bì* 'must' > 'only if'	*fēi* 'unless' > 'must'
Indirect speech act	*advise*	*advise*
Initial stage (Fig. 4.1)	*bì* 'must' *p*, *then q* 'must *p*, then *q*'	*fēi* 'unless' *p*, *bù kě* 'unless *p*, it is not possible'
Intermediate stage (Fig. 4.2)	[*bì* 'must' *p*, *then q*] as an *advise* construction	[*fēi p*, *bù kě*] as an *advise* construction
End stage (Fig. 4.3)	[*bì* 'only if' *p*, *q*]	[*fēi* 'must' *p*]

Table 4.3 *Bì* 'only if' and *fēi* 'must' in and out of modality and conditionality

Studies of invited inferencing commonly examine the semasiological development of one single construction (or at least assumed to be one). For example, Traugott's (1989:31) "paradigmatic example" is *while*, whose history is as follow: "(OE) *þa hwile þe* 'at the time that' > Middle English (ME) *while* 'during' > Present-Day English (PDE) *while* 'although'". However, it would seem inaccurate to

characterise the development of *bì*, schematicised in Figures 4.1–4.3, as the evolution of one construction. Clearly, what is involved as source constructions in the evolution of *bì* include two schematic constructions (the *bì* 'must' and *then* constructions; Figure 4.1) and one less schematic, bi-clausal construction, [*bì* 'must' *p*, *then q*] that performs indirect acts (Figure 4.2). This renders it difficult to generalise over directionalities between semantic categories. This is because, even though the two schematic constructions such as the *bì* 'must' and *then* constructions may be able to combine to sanction another one, such as the indirect speech acct construction [*bì* 'must' *p*, *then q*], the resultant construction may have idiosyncrasies that cannot be attributed to its source constructions. In the case of [*bì* 'must' *p*, *then q*], it is performativity, which cannot be derived compositionally, completely, from *bì* 'must' and *then*. Or in other words, the whole is greater than the sum (see also Croft 2001, who takes basic speech act functions to be indispensable aspects of constructions).

More specifically, [*bì* 'must' *p*, *then q*], the immediate source for [*bì* 'only if' *p*, *q*], cannot be reduced to the sematic category of 'modality' (the category of *bì* 'must'), or 'temporal relation' (the category of *then*). What characterises it is also the indirect act of *advise* and its associated inference of 'only if'. In the case of *fēi* 'unless' > 'must', a similar argument can be made: the immediate source for [*fēi* 'must' *p*], the [*fēi* 'unless' *p*, *bù kě*] construction that performs indirect speech acts, cannot be reduced to either 'conditionality' (the category of *fēi* 'unless') or '(negative) modality' (the category of (*bù*) *kě* '(not) possible), because [*fēi p*, *bù kě*] performs *advise* indirectly.

'Splitting' the history of *bì* or *fēi* into constructions therefore helps us see that the number and nature of the constructions involved do not justify reducing *bì* 'must/only if' or *fēi* 'unless/must' to its semantic category (see also Ch. 3.4 for the challenge against 'secondary grammaticalisation' from multiple source constructions). This is where diachronic construction grammar and invited inferencing can be synthesised (as also done by Diewald & Smirnova 2012; Smirnova 2015a, b): the former can enhanced by a theory of meaning change, while

the latter can benefit from a theory of how grammar is organised into formally identifiable sets that interact with meaning change.

However, if semantic unidirectionality between grammatical categories does not necessarily exist in scenarios with multiple source constructions, can regularity be construed in a different, non-unidirectional way? The next section aims to provide a positive answer, by adopting a constructional perspective.

4.5.1 The performative bidirectionality prediction

First, perhaps more trivially, in both directions of change observed in Table 1, there is still 'regular' movement from pragmatics to semantics, which is the most basic type of change that the IITSC captures: what was merely inferential has become semantic, i.e. the speaker meaning was first implied but then externalised. Inferences of 'only if' become semanticised in [*bì* 'must' *p*, *q*] because [*bì* 'must' *p*, *q*] invite them. Inferences of 'must' also become semanticised in [*fēi* 'unless' *p*, *bù kě*] because [*fēi p*, *bù kě*] invites them. It is this regularity at the most fundamental level that motivates discussion of bidirectionality between modality and conditionality from the perspective of IITSC.

Second, more profoundly, the aspect of pragmatics that has semanticised in each direction of change is closely associated with performative meaning. Essentially, both the source and target semantics can express the same performative meaning, i.e. they are 'performatively equivalent'. In the change from *bì* 'must' > 'only if' and *fēi* 'unless' > 'must', the source semantics ('must' and 'unless') is used performatively (as *advise*), and interpreted as equivalent to the target semantics ('only if' and 'must'). The semanticisations, however, are grounded in the Chinese network of constructions where modals and conditional connectives are not highly morphosyntactically differentiated (see §4.2), outside which the semanticisations might be less plausible. Based on this observation, a prediction about bidirectionality involving performativity can be made. It is composed of two parts: bidirectional inferencing, motivated by performative equivalence between

two semantic meanings, and bidirectional categorisation, conditioned by morphosyntactic properties. It is spelled out below:

The performative bidirectionality prediction:

Given semantics X_{sem} in Construction X_{con}, where X_{sem} is the head, or 'profile equivalent' (see below),
and
semantics Y_{sem} in Construction Y_{con}, where Y_{sem} is the profile equivalent,

Bidirectionality is possible if the following two conditions are met:

Bidirectional inferencing:
The same performative meaning P can be conventionally expressed by X_{con} and Y_{con}
(so that X_{con} may invite inferences of Y_{sem} and Y_{con} may invite those of X_{sem})

Bidirectional categorisation:
There is no consistently clear formal differentiation between categories encoding X_{sem} and Y_{sem}
(so that X_{con} may semanticise Y_{sem} and Y_{con} may semanticise X_{sem}, i.e. $X_{sem} > Y_{sem}$ and $Y_{sem} > X_{sem}$ are possible)

'Profile equivalent' is defined as: "In a combination X + Y, X is the PROFILE EQUIVALENT if X profiles/describes a kind of the thing profiled/described by X + Y" (Croft 2001: 257; capitalisation original). Based on Langacker's (1987) 'profile determinant', 'profile equivalent' defines 'head' from a constructional perspective.)

For example, in the case of *bi*,

P = *advise*,

semantics X = modality X_{con} = *bì* 'must' *p*, *then q*

semantics Y = conditionality Y_{con} = *wéi* 'only if' *p*, *q*

X_{sem} and Y_{sem} do not consistently occur in slots where they can be distinguished.

In the bidirectionality prediction, X and Y are explicitly specified as the profile equivalents of their respective constructions because X_{con} and Y_{con} may have other components (e.g. *then* in [*bì* 'must' *p*, *then q*] and *bù kě* 'not possible' in [*fēi* 'unless' *p*, *bù kě*], in addition to what morphosyntax that codes *p* and *q*). Note that the bidirectionality prediction does not reduce X_{con} or Y_{con} down to only its semantic category, as it explicitly incorporates performativity into its prediction. More succinctly (and somewhat reductively), the bidirectionality prediction boils down to 'the expression of indirect speech acts by formally similar constructions predicts bidirectional developments between semantic categories profiled by the constructions'.

The prediction captures the intuition that in English modality and conditionality can also arise from each other as invited inferences. Modal sequences such as *must… then*, *can* can invite inferences of 'only if', if they perform the same speech act, while *unless p* may also mean performatively 'must *p*'. For example, imagine (23) and (24) to be uttered by an angry parent to their child:

(23) you must brush your teeth first and then you can go to bed!
~only if you brush your teeth can you go to bed

(24) unless you finish your homework, you cannot go out!
~you must finish your homework

Nevertheless, *must* or *unless* probably would not turn into *only if* and *must* respectively because, first, *must… then*, *can* and *unless* have not conventionalised

as indirect speech act constructions in English, and second, auxiliaries such as *must* and connectives such as *if* and *unless* are sharply distinguished in the English constructicon. For example, *must* participates in subject-auxiliary inversion and as such, forms a paradigm with other auxiliaries, while connectives such as *if* and *unless* do not. Moreover, modal auxiliaries and connectives also have well-defined, non-overlapping positions (except for the case of verb-first conditionals): auxiliaries are immediately post-subject, unless inverted, while connectives are always pre-subject and clause-initial. Within the same clause, both can even co-occur so that one is clearly differentiated from the other: *if you must…* or *unless you can….* Across clauses, they also behave differently: *only if* triggers subject-auxiliary inversion in the apodosis. In short, in constructional terms, English modal auxiliaries and connectives occur in constructional slots that can be differentiated from each other. However, the constructicon of Chinese differs from English such that modal auxiliaries and conditional protasis connectives do not consistently appear in distinct slots. Even though they could occur together in a sequence, an overwhelming number of modals does not tend to co-occur with protasis connectives (see §4.2).

Note also that the bidirectionality prediction is formulated without incorporating conditionality and modality explicitly, in order to extend it beyond conditionality and modality. This is because indirect speech acts may not be exclusively expressed by modality or conditionality; there is great variation both within and across languages (e.g. Blum-Kulka et al. 1989; Mauri & Sansó 2011). In English, for example, a bare noun or an imperative verb may also perform *command* (imagine a petulant child demanding: *cake*! or *give me cake*!). In Dutch, the infinitive can perform the prohibitive. For example,

(25) *Niet* *zingen*!
NEG sing.INF
'Do not sing!' Olmen (2010: 473)

This prediction therefore is crosslinguistically generalisable in principle. However, given that 'conventionalisation' is built into the prediction, the kind of developments that the prediction may apply to is expected to be late-stage in the sense that they have already been conventionalised for certain speech act functions. This also accounts for the observation that exceptions to unidirectionality seem to occur in more advanced stages of grammaticalisation (see for example Narrog 2012b, 2015).

Finally, the prediction can also be synthesised with the cognitive linguistics literature on indirect speech acts. This strand of research was initiated by Thornburg & Panther's (1997) analysis of speech acts as metonymies. It models speech acts using idealised cognitive models, demonstrating that speech acts can be characterised by a host of semantic and pragmatic attributes (typically, but not necessarily modal or conditional in nature) that metonymically activate, to different degrees, aspects of speakers' encyclopaedic knowledge about illocutionary forces (e.g. Panther & Thornburg 1998; Stefanowitsch 2003; Pérez Hernández & Ruiz de Mendoza 2002).[16] For example, to perform a speech act indirectly, a speaker may evoke one of its felicity conditions. *I think it's good for you to do X* can perform *advise* because it evokes the preparatory condition for *advise* that "S[peak has some reason to believe A (the advised act) will benefit H[earer]" (Searle 1969: 67; see §4.3.4.2). This line of research, though predominantly based on English, can be easily extended to other languages. Given an idealised cognitive model of a speech act in a language, the model can help predict bidirectional shifts, as it spells out what kinds of constructions can perform the same act.

4.5.2 A case of bidirectionality in Japanese

There is at least one case of bidirectional developments in Japanese that complements the shift in Chinese discussed here. Tanno (2017) shows that a clause-

[16] 'Degrees of activation' correspond to the traditional view on how 'conventionalised' the performance of a speech act is. That conventionalisation is gradient renders problematic the distinction *direct* vs. *indirect* speech acts (e.g. Stefanowitsch 2001). See also Footnote 8.

initial connective *datte* has developed from a concessive connective ('but') to a causal connective ('because') from contexts where speakers use *datte* 'even so; but' as a discursive strategy to signal their disagreement with the addressee and justify their behaviour (this strategy is thus performative in nature). To simplify Tanno's (2017) detailed analysis, the following constructed exchange shows that in English, *even so* and *but* can invite inferences of *because*, as in Japanese, when they are used for disagreement and justification.

(26) A: You shouldn't do it.
B: *datte* (even (you say) so; but), I like it. I can.
~Because I like it, I can

Moreover, Tanno (2017: 36) observes that crosslinguistically the semantic category of causality and that of concessivity can develop into each other.[17] In a different class of Japanese connectives, Narrog (2016: 259–262) also reports that there are bidirectional trajectories between causality and concessivity. In fact, Narrog (2016: 259) remarks "especially striking is the indeterminacy between concessive and causal subordinators".

Evidence from developments between causality and concessivity suggests that, first, bidirectional inferencing between the semantic categories of causality and concessivity is possible; second, bidirectional categorisation is language-specific: the two morphosyntactic categories coding causality and concessivity may be distinct. For example, (26) suggests inferencing between causality and concessivity in English is possible: both *but* and *because* in the context are 'performative equivalent', or serve the same rhetorical purpose. However, in English, *even so*/*but* and *because* are traditionally treated as 'coordinator' and

[17] Because bidirectionality between causality and concessivity violates unidirectionality in subjectification (less subjective > more subjective), Tanno (2017: 36) remarks "the notion of subjectification, therefore, is less helpful in accounting for changes of this type". However, he labels the development of *datte* as grammaticalisation. It is not clear why subjectification has to be unidirectional for him, but not grammaticalisation.

'subordinator' respectively, the distinction of which, despite some problems, "seems to be very clear cut" (van Valin & LaPolla 1997; but see Verstraete 2002: Ch. 4). Because *even so*/*but* and *because* in English can be formally distinguished, they probably will not develop into each other easily. However, in the constructicon of Japanese, more generally, there is much less distinction between subordination and coordination (Suzuki & Thompson 2016), and more specifically, as Narrog (2016) observes, the boundary between concessive and causal subordinators is vague, allowing bidirectional shifts between causal and concessive connectives.

4.5.3 Discussion

The performative bidirectional prediction is a constructional approach to bidirectional developments because it emphasises the importance of construction-specificity and the 'ecology' or 'constructicon' within which change occurs, which has also been stressed by Petré (2014) and De Smet et al. (2018), among others.

Indirect speech act constructions, such as [*bì* 'must' *p*, *then q*] in Figure 4.2, cannot be reduced to the semantic category of its 'profile equivalent' or that of its component parts (modality and temporal relation in [*bì* 'must' *p*, *then q*]), because their performative function is specific to, and hinges on the whole construction, not its individual parts. In order to account for bidirectional change, particularly one involving indirect speech act constructions, an understanding of a language's constructicon, at multiple levels of organisation, is also required. The analyst has to (1) consider constructs in their performative contexts (as in §4.3), (2) propose indirect speech act constructions and their profile-equivalents, and (3) examine properties of the profile-equivalents *outside* the indirect speech act constructions, but *within* the constructicon, in order to uncover what morphosyntactic features (or lack thereof), may motivate bidirectional developments.

This attention to multiple levels of generalisations, as argued in Chs. 2–3, cannot be reduced to a linear representation of semantic and/or morphosyntactic categories, which would suggest that, in bidirectional developments, one of the directions is the exception, or requires some special mechanism (i.e.

degrammaticalisation and insubordination; see Ch. 5 for more details). Moreover, the performative bidirectional prediction leaves very little room for 'secondary grammaticalisation' in a theory of change, as far as the data considered here are concerned. The prediction shows that in changes involving grammatical constructions such as modal and conditional ones, the basic mechanism of semantic change may still be neoanalysis of invited inferences, which is found at various stages of grammatical change (see also Smirnova 2015a), and bidirectionality follows from the interaction between invited inferencing and a language's constructicon.

4.6 Conclusion

This chapter starts off by presenting an invited inferencing analysis of the modal *bì* in Classical Chinese. It is proposed that three conditions cluster in inviting inferences of modal *bì* as a conditional connective 'only if'. Under the three conditions, modal *bì* can be interpreted as conditional because *bì* is used teleologically to perform *advise*, while 'only if' can also perform *advise* as well. This analysis refines van der Auwera & Plungian's (1998) semantic map in that it shows deontic necessity (of which teleological modality is a subtype) can give rise to conditionality. Moreover, while Traugott (1985) only suggests that 'conceivable possibilities' to be one meaning similarity that motivates the development of conditionality out of modality, the analysis also demonstrates that performativity is another key factor, too.

The second half of this chapter discusses what implications the semanticisation of *bì* from modality into conditionality has, taking into account that the opposite direction, from conditionality into modality, is also attested in Chinese. Putting aside more detailed analysis of the change from conditionality into modality until Ch. 5, it is proposed here that in either direction of development, the constructions involved are too numerous and complex to be reduced to single semantic categories, between which unidirectionality is supposed to hold. However, despite the challenge from bidirectionality, regularity in semanticisation is still

hypothesised to be upheld by the bidirectionality prediction made in §4.5.1 that incorporates 'performativity' and construction-specificity. The prediction can be summarised as follows: 'the expression of indirect speech acts by formally similar constructions predicts bidirectional shifts between semantic categories profiled by the constructions.'. Future research may further illuminate what other categories exhibit bidirectional shifts and whether the performative bidirectionality prediction can be further restricted. For example, particular shades of performativity may be proposed to play a more prominent role in either direction, and exactly how similar, by what criteria, two constructions need to be in order to be considered performatively equivalent.

For future work, the analysis of the development of *bì* can benefit from considering the coordination construction in Chinese that sanctions the *bi* 'must' construction and the *then* construction. A more precise approach to modal and conditional meanings (e.g. Lewis 1975; Heim 1982; Kratzer 1986) may also provide more insights into the development.

Chapter 5

From conditionality to modality: subjectification, Degrammaticalisation, insubordination or textualisation?

5.1 Introduction

This chapter first presents a more detailed analysis of the change from conditionality into modality than the one presented in Ch. 4, and then explores whether it is possible to approach the change from the perspectives of alternative proposals, such as 'degrammaticalisation', 'insubordination' and 'textualisation' (alternatively labelled as 'textual (inter)subjectification' by Ghesquière 2010 or 'increases in discourse orientation' by Narrog 2012b). These proposals either directly reference or imply the concept of 'late-stage' or 'secondary grammaticalisation': degrammaticalisation presupposes grammaticalisation, insubordination presupposes subordination and textualisation assumes complex clausal structure to be more 'advanced'. It will be argued that the performative bidirectionality prediction, which integrates invited inferencing and constructionalisation, accommodates the change under investigation more satisfactorily than any of the alternative proposals. Moreover, as the change from conditionality to modality examined here is also shown to be accounted for by invited inferencing, but not any late-stage specific processes, this chapter also demonstrates that the proposal that 'secondary grammaticalisation' is associated with specific processes cannot be maintained in the domains of modality and conditionality (see also Ch. 3 for this argument in general). In other words, the chapter proposes that the development of the modal *fēi* 'must' construction is accounted for in the same and principled way as that of the conditional *bì* 'only if'

construction in the constructionalisation framework, despite the fact that there is no unidirectionality, but bidirectionality.

This chapter is structured as follows. §5.2 presents an invited inferencing analysis of *fēi*, followed by a diachronic construction grammar one in §5.3, in the same style as Ch. 4. The rest of the chapter considers alternative models. §5.4–§5.5 explore the possibilities of approaching the data from the perspectives of 'degrammaticalisation' and 'insubordination'. §5.6 discusses different approaches to semantic change and (inter)subjectification that could potentially accommodate the change from conditionality to modality, but ultimately concludes that the standard analysis of '(inter)subjectification' in the IITSC suffices. §5.7 concludes.

5.2 Semanticisation of *fēi* 'must' from *fēi* 'unless'

This section looks into the change from 'unless' to 'must' that *fēi* has gone through. §5.2.1 introduces its history, §5.2.2–5.2.4 analyses its development in detail, from the perspective of the IITSC. §5.2.5 summarises.

The main analysis is built on Eifring (1995), who proposes that the meaning of 'must' originates from contexts where the apodosis has certain types of content. PDC data were drawn from both the CCL and Sinica Corpora to supplement Eifring's synchronic description, while original corpus searches in the Mīng dynasty (1368–1644) and Qīng dynasty (1644–1911) sections of the CCL corpus were carried out to flesh out Eifring's analysis. Only these two periods were chosen for the diachronic analysis as Eifring's historical investigation suggests that the change took place in late Early Modern Chinese (for periodisation, see Ch. 1). As texts from the Mīng and Qīng dynasties are easier to date (as compared to Classical Chinese in Ch. 4), authors' dates of birth and death are provided, if no date of composition or publication is available.

5.2.1 A brief history of *fēi*

Originally, *fēi* is a negative copula 'be not' in Classical Chinese that can take a clause or NP as its complement (Pulleyblank 1995).

(1) 非我也兵也

fēi	wǒ	yě,	bīng	yě
be.not	1PS	FP,	weapon	FP

'It was not I, it was the weapon.' translated by Pullyeblank (1995: 16)

It can also be used with *bù* in another clause to indicate negative condition: [...*fēi* …]$_{\text{protasis}}$ [...*bù* …]$_{\text{apodosis}}$ 'unless… not' (Eifring 1995: 257; Pullyeblank 1995: 154).

(2) 非盡族是天下不安

fēi	jǐn	zú	shì	tiānxià	bù	ān
unless	complete	exterminate	DEM	world	NEG	peaceful

'Unless one completely exterminates these people, the world will not be peaceful.' based on Eifring (1995: 257)

The origin of *fēi* 'unless' as a connective may lie in a simple combination of clauses, in which the first clause headed by *fēi* is reinterpreted as the conditional protasis. For example, *fēi* in (3), from Classical Chinese, can be interpreted as 'be not' or 'unless'.[1]

[1] Note that an NP without a (positive or negative) copula can be a predicate (Shi 2000). On the 'unless' reading of (3), *wǒ zú lèi* 'our clan and kind' in the conditional protasis is a predicate. *wǒ zú lèi* can be further decomposed into three NPs: *wǒ*, a 1st person pronoun underspecified for number and *zú* 'clan' and *lèi* 'kind'. The simple juxtaposition of a personal pronoun and an NP or more signals possession.

(3) 非我族類,其心必異

fēi	wǒ	zú	lèi,	qí	xīn	bì	yì
be.not	1PS	clan	kind	3PS	heart	must	differ

'(Whoever$_i$ that is) not our kind, their$_i$ loyalty must lie elsewhere.'

'Unless (they$_i$ are) our kind, their$_i$ loyalty must lie elsewhere.'

Pulleyblank (1995: 154; translations mine)

According to Eifring (1995), *fēi* has also developed into a necessity modal, as in (4).

(4) 我非給他做他愛吃的飯菜

wǒ	**fēi**	gěi	tā	zuò	tā	ài	chī	de	fàncài
1SG[2]	must	for	3SG	make	3SG	love	eat	NOM	food

'I must make for him the kind of food he likes to eat.'

based on Eifring (1995:257)

He also notes that *fēi* "expresses intense and stubborn subjective will rather than objective necessity" (Eifring 1995: 258). This is exemplified in (5), where *bù gàn* lit. 'not do' conveys emphatically the speaker's dissatisfaction, which can be translated into 'I will have none of it; I will not allow it'.

(5) 我不幹,非在北京城找事

wǒ	bù	gàn,	**fēi**	zài	běijīng	chéng	zhǎoshì
1SG	NEG	do	must	LOC	Beijing	city	job-hunt

'I won't put up with it; I must look for jobs in Beijing.' Eifring (1995: 258)

All the patterns above have persisted into PDC, which therefore allows for an interesting case of polysemy where *fēi* may have multiple, sometimes

[2] In PDC plurality on pronouns is explicitly marked. An unmarked pronoun therefore is singular, as in (4). In Pre-PDC, however, plurality may not be explicitly marked, therefore *wǒ* in (3) is glossed as '1PS' (1st person).

compatible readings: it can be interpreted negatively as ‘be not’, positively as ‘must’ or conditionally as ‘unless’. This is most evident in the following set of sentences extracted from the Sinica Corpus, in all of which *fēi* precedes *gēn* ‘with’. Without any context, all three of them may be interpreted as ‘be not’, ‘unless’ or ‘must’.[3]

(6) 非跟以前的造型一模一樣

fēi	gēn	yǐqiánde	zàoxíng	yīmóyīyàng
fēi	with	previous	model	identical

‘It is not identical with the previous model…’

‘Unless it is identical with the previous model…’

‘It must be identical with the previous model...’

(7) 非跟你拼了

fēi	gēn	nǐ	pīn	le
fēi	with	2SG	fight.it.out	PFV

‘It’s not that I fought it out with you/ It’s not that I want(ed) to fight it out with you…’

‘Unless I fight it out with you…’

‘I must fight it out with you...’

(8) 非跟父母現身

fēi	gēn	fùmǔ	xiànshēn
fēi	with	parents	show.up

‘It’s not that they showed up/want(ed) to show up with their parents...’

‘Unless they show up with their parents…’

‘They must show up with their parents…’

[3] *Fēi* in (6) is read as ‘be not’, which is clear from its larger context *bìng* ‘actually’… *ershì* ‘instead’ (i.e. ‘It is actually not identical with the previous model; instead…’). In (7) it is read as ‘must’. The defiant tone of ‘fight it out’ is similar to (5). The preceding clause challenges the addressee: ‘you dare touch me again, I must/surely will fight it out with you. In (8) it is read as ‘unless’ because of the following clause *bù kě* ‘not possible/permissible’: ‘unless they show up with their parents, it is not permissible’’

Citing Lin (1972: 362), Eifring (1995: 263) observes that the development of *fēi* from conditionality to modality might have originated from the pattern *fēi p*, *bù kě/bù xīng/bù chéng*, where *bù bù kě/bù xīng/bù chéng* are negatively evaluative predicates that respectively mean 'not possible/permissible', 'not acceptable' and 'not work/feasible'. The historical investigation by Hong & Dong (2004) confirms this suggestion: the modal use of *fēi* originated from its conditional use. Lü (1999) in his grammar of PDC also observes *fēi p bù kě/bù xīng/bù chéng* may indicate necessity, and that *bù kě/bù xīng/bù chéng* may be optional. However, Lin, Eifring, Hong and Dong and Lü do not examine under what kind of conditions *fēi p*, *bù kě/xīng/chéng* 'unless *p*, it is not possible/acceptable/feasible' develop the meaning of necessity. The next section attempts to identify the conditions.

5.2.2 Analyses of *fēi* 'unless' > 'must'

The analytical framework adopted here is the IITSC, same as the first half of Ch. 4. 'Speaker' and 'Addressee/hearer' will also be referred to pronominally as 'she/her' and 'he/him', respectively. Speech acts, when referred to, will be italicised.

Following Dancygier (1998), the semantics of *unless p, q* is '*q*; only if *p,* ~*q*', Or in other words *q* 'is asserted, with the reservation that in the case of [*p*], it will not hold' (Dancygier and Sweetser 2004: 183). Here, the semantics of *fēi p*, *q* is also assumed to be '*q*; only if *p*, ~*q*'. Following previous studies such as Eifring (1995) and Hong & Dong (2004), this 'unless' semantics of *fēi* gave rise to the modal meaning of *fēi*.

In Ch. 4, the development of *fēi* is likened to that of *bì* in that their performative meanings imply the target meanings (*bi* 'only if' and *fēi* 'must'). However, the actual picture is more complicated; there is more than one kind of usage context in which *fēi* 'unless' *p, q* invites the meaning of 'must *p*' and *advise* is but one of the many directive speech acts that *fēi* 'unless' *p*, *q* can perform; others include *request* and *command*. Moreover, when used epistemically, *fēi* 'unless' *p*, *q* can also invite inferences of 'must *p*'. What characterises contexts where *fēi* 'unless' *p*, *q* invites inferences of 'must *p*', whether deontically or epistemically, is that the

protasis marked by *fēi* carries most of the information and illocutionary force intended by the speaker, while the apodosis *q* merely supports it, typically in the form of a negative predicate meaning 'not possible'. §5.2.2.1 discusses deontic examples, followed by epistemic ones in §5.2.2.2. §5.2.2.3 summarises.

5.2.2.1 *Fēi* 'unless' > deontic 'must'

When *fēi* 'unless' *p*, *q* performs *advise*, it may invite inferences of 'must'. In such examples, *q* in some way may reiterate aspects of the goal that *p* advises on. In the following exchange, the emperor asks Cài Jīng how many men he would need to send to *shō jiǎo* 'defeat; lit. restrain and destroy' the enemy, to which Cài Jīng responds:

(9) 非以重兵,不能收剿

fēi	yǐ	zhòng	bīng,	bù	néng	shō	jiǎo
unless	use	heavy	army,	NEG	can	restrain	make.surrender

'Unless we send a large army, we cannot defeat (lit. restrain and make surrender) them.' *Shuǐhǔzhuàn* (14th c.)

In (9), *p* is 'we send a large army', while *q* is 'we cannot defeat them', and (9) invites the inference of 'we must use a large army (or we cannot defeat them).' What Cài Jīng intends to perform is very similar to example (18) in Ch. 4: using *fēi p*, *q*, he responds to his political superior's request of *advise*, by suggesting that he must do *p*; *p* is therefore both the advised act and carrier of the illocutionary force of *advise*.

What is especially notable in their exchange is that *p* is more discourse-new, carrying most of the information content and illocutionary force, while *q* is less discourse-new, the content of *q* 'we cannot defeat them' being not particularly informative.

The speaker intends to say that the emperor must 'send a large army', in response to the emperor's request for advice; the performance of *advise* therefore is to get the addressee to 'do *p*', rather than *q*. On the other hand, *q* is not

especially informative because it recasts negatively the emperor's question (namely, 'how can we defeat them?'). Moreover, the conceptual similarity between the emperor's question and Cài Jīng's response is further echoed by Cài Jīng's choice of reiterating one of the words used by the emperor, *shō* 'restrain'. The apodosis thus actually does not, strictly speaking, bring much to the table: it is more discourse-old (or at least not as 'new' as *p*). Supposedly, *q* is exactly what the emperor intends to avoid when asking the question. Given that ~*q* is desirable for the emperor (as evidenced by his question about achieving ~*q*) and *q* is not, saying *unless p*, *q* '*q*; only if *p*, ~*q*' amounts to emphasising 'only if *p*' as the only way to achieve the desirable ~*q* and avoid the undesirable *q*. In other words, *p* 'must' be performed for ~*q* to be true.

In sum, (9) invites 'must' as inference because the speaker presents *p* in *fēi p*, *q* as part of *advise*, and as the only desirable way for the addressee to achieve his goal, i.e. ~*q*. There is thus 'performative equivalence' between *fēi p, q* and its inference *fēi* 'must' *p. Fēi p* in (9) is similar to the change of *bì* captured in Ch. 4.3.6, in that both are part of the performance of *advise* and introduce discourse-new *p*, which is the main carrier of the illocutionary force and propositional content of *advise*, followed by discourse-old *q*.

Furthermore, *p* can also be described as the 'primary information bearing unit' (PIBU; Croft 2001), in that *p* carries most of the propositional content and the illocutionary force of *advise* (the advised act is *p*). Main clauses typically (but not always) encode primary information— it is asserted and foregrounded, while subordinate clauses present non-primary information, because it is non-asserted and backgrounded (e.g. Thompson 1987; Harris & Campbell 1995; Croft 2001; Cristofaro 2003, 2008). Given the PIBU status of *p*, *fēi p* may be interpreted as a main clause utterance and *fēi* as a modal within it. Again, crucially, it is also enabled by the fact that both conditional constructions such as *fēi p*, *q* and modal constructions in Chinese can be performatively equivalent; *fēi p*, *q* can be read as a modal construction *fēi* 'must' *p* because they can perform the same act. Note that even though *q* is not the PIBU, it does not mean that it serves no purpose.

Rhetorically, *q* highlights the importance of *p* and implies that *p* is necessary, without which *p* in *fēi p*, *q* probably would not be interpreted as the PIBU in which *fēi* means 'must'.

Assuming a desirability-based account of deontic modality and conditionality (Akatsuka 1992, 1997), a deontic modal signals that the proposition it modalises is good (desirable). In (9) where *fēi p* invites 'must *p*', *q* is evaluatively negative for the addressee (i.e. *q* 'we cannot defeat them' is not desirable, as the addressee has asked how to 'defeat them'); therefore, *q* means 'not good'. Bearing in mind that the semantics of *fēi* 'unless' *p*, *q* is '*q*; only if *p*, ~*q*', *fēi p*, *q* in (9) means 'not good; only if *p*, good' (after we replace *q* with 'not good'). This amounts to saying 'only if *p* is it good', which means *p* is the only desirable act to carry out, and invites inferences of 'must *p*'. Therefore, the speaker may be said to use *q* in (9) to 'evaluate' *p* positively, in order to advise the addressee carry out *p*. Even though the propositional content of *q* by itself is evaluatively negative ('not good'), once entered into the semantic computation of *fēi p*, *q*, the pragmatic function of *q* in examples such as (9) is positive evaluation of *p*.[4]

There are many patterns where the *fēi*-marked protasis is the PIBU, expressing the illocutionary force and most of the information content of *fēi p*, *q*, while *q* is contextually undesirable and evaluates *p* positively. The following example is very similar to (9): it is a piece of *advise* offered to the emperor, who asks: 'The kingdom of Chū is difficult to *fá* ('attack'); would twenty thousand solider probably be not enough?', to which the speaker responds:

[4] To streamline the analysis, I left aside the role of negation and presupposition. Very briefly, the use of negation (as in ~*p*) typically presupposes that the addressee thinks the opposite (i.e. *p*) is true (e.g. Givón 1979). In (9), and examples below, the apodosis *q* 'not good' therefore presupposes ~*q* 'good', something desirable which the addressee would want to bring about and which is typically established in the preceding discourse. *Fēi p*, *q* invites inferences of 'must' because the presupposed ~*q* is 'good' and *p* is the only way to achieve ~*q*, following from, again, the interaction of the semantics '*q*; only if *p*, ~*q*' and its pragmatics 'not good; only if *p*, good'.

(10) 伐楚之兵,非六萬不可

fá chǔ zhī bīng, **fēi** liù wàn bù kě

attack Chu POS army unless six ten.thousand NEG possible

'The army that (you'll send to) attack(s) Chu, unless it has sixty thousand men, it is not possible (to attack them)'

~ 'The army must have sixty thousand men (or it would not be possible)'

Zhōu cháo mìshǐ (16th c.)

Note that *fá* in (10) also echoes the emperor's language, *fá Chū* 'attack Chū', *p*= 'it has sixty thousand men', and *q*= 'it is not possible'. (10), again, invites the inference that *fēi p* means 'they must have sixty thousand men', because the carrier of the propositional content and illocutionary force is *p* and *q* is something undesirable for the addressee, thereby evaluating *p* as positive. The initial phrase 'the army that attacks Chū' and the apodosis 'it would not be possible' are in a sense informationally secondary; they help to highlight the PIBU status of the *fēi* clause, including its informational content and illocutionary force.

The same interaction between *fēi p* and *q* can also be found in examples with different directive illocutionary forces, such as *request* and *command*, which also invite inferences of 'must'. Interestingly, similar to (10), many of them also contain *bù kě* 'not possible/permissible' or *bù xīng* 'not work/not feasible' in the apodosis, which is evaluatively negative by itself and has comparatively little information content, or at least less than *p*, but, at the same time, pragmatically evaluates *p* as positive in the context of *fēi* 'unless' *p*, *q* '*q*; only if *p*, ~*q*'.

(11) performs *request* and invites 'must'. The speaker, a strategist, asks her lord that he let a general Zǐlóng help carry out her strategies.

(11) 吾已定下三條計,非子龍不可行

wú	yǐ	dìng	xià	sān	tiáo	jì,	**fēi**	zilóng
1PS	already	set	down	three	CL	strategy	unless	Zǐlóng
bù	kě		xíng					
NEG	possible		work					

'I have already planned three strategies. Unless it is Zǐlóng it cannot work'

~ 'It must be Zǐlóng (or it cannot work')' *Sānguó yǎnyì* (14th c.)

In (11), *p* = 'it is Zǐlóng' and *q* = 'it cannot work'. Despite the difference in performativity between (10) and (11), *p* is still the PIBU, while *q* evaluates *p* as positive and the whole *fēi p*, *q* effectively means 'it must be Zǐlóng'. This, again, follows from the interaction of the semantics and pragmatics of *fēi p*, *q*. As *q* is contextually undesirable, meaning 'not good', *p* is presented as desirable: 'not good; only if *p*, good'. *Fēi* can therefore be read as modalising *p* as deontically necessary that performs the same act.

The next example performs *command*. It is uttered by the emperor. Effectively, it demands the realisation of *p* 'I assign you; or you be assigned'.

(12) 此一事,欲代差官,非卿不可

cǐ	yī	shì,	yù	dàichà	guān,	**fēi**	qīng
DEM	one	matter	want	assign.to.posts	official	unless	2PS
bù	kě	.					
NEG	possible						

'To deal with this incident, I want to assign an official; Unless I assign you (or unless it is you) it is not possible/permissible.'

~ 'I must assign you (or it is not possible/permissible).'

Jǐngshì tōngyán (17th c.)

In sum, *fēi p*, *q* invites inferences of 'must *p*' when *fēi p*, *q* is used performatively to direct the addressee to do *p*. In such examples, *q* typically

contains a negator *bù* 'not' and is used evaluatively to highlight *p* as the PIBU, in terms of both propositional content and illocutionary force. Crucially, performance equivalence between *fēi p*, *q* and its inference *fēi p* 'must *p*' facilitates the reading of the former as the latter.

5.2.2.2 *Fēi* 'unless' > epistemic 'must'

In slightly later examples, the same pattern with *fēi p*, *q* can be used epistemically as well, especially when the apodosis is *bù kě*. Immediately before (13) the speaker wonders why her treatment for the addressee has had no effect. In (13) she then reasons that that to cure the illness, one must *làn shāo* 'burn (the addressee's acupuncture points) until it is cooked through'.

(13) 病本何以不拔?此非爛燒不可

bìng	běn	héyǐ	bù	bá?	cǐ	**fēi**	làn	shāo	bù
illness	root	why	NEG	uproot	DEM	unless	cook	burn	NEG
kě									
possible									

'Why can't the illness be eradicated? Unless your acupuncture points are burnt through it is not possible (to cure it).'

~ 'Your acupuncture points certainly will have to be burnt through (to cure the illness).' *Liáozhāi zhìyì* (18th c.)

In (13), *fēi* is used with epistemic invited inferences, not deontic ones. The speaker is not telling the addressee to burn though his own acupuncture points (the context makes this clear: the addressee has come to the speaker for treatment and he cannot perform any treatment himself). Rather, the speaker is expressing her (rather strong) epistemic prediction that it will be the only effective treatment (as she has tried less aggressive treatments multiple times before). In (13), *q* again plays second fiddle to *p* with respect to the intended message. The speaker aims to communicate her epistemic reasoning of *p* as highly likely, while *q* merely helps to

evaluate *p* as indeed true. Another example of epistemic *fēi*, in (14), indicates quite clearly that the 'unless' reading has receded, while the 'must' reading has come to the foreground. The speaker, upon hearing that two groups of people have started fighting, uses *chū rénmìng* 'loss of life occurs; lit. exit life' as *p* in *fēi p*, *bu q* to predict that some will definitely die.

(14) 非出人命不可

fēi	chū	rénmìng	bù	*kě*
must	exit	life	neg	possible

'Some will certainly die.'

'?Unless some die, it is not possible.' *Sānxiájiàn* (late 19th–20th c.)

In (14), *bù kě* does not seem like a proper apodosis; rather, it is more like an idiomaticised epistemic modifier that stresses the inevitability or high degree of likelihood of *p*. *Bù kě* therefore is not unlike sentence-final *I think* and *I guess* in English, in that they are arguably not main clauses anymore, but 'parentheticals' that express epistemic commitment (see Thompson & Mulac 1991).

In examples like (13) and (14), *bù kě* expresses the speaker's epistemic commitment to *p*. Lü (1999) notes that in PDC *fēi* with the meaning of modal necessity may co-occur with an optional *bù kě*. (14) may be an earlier precursor of this usage: even though *fēi p bù kě* is biclausal, more typical of conditionals, it can actually be interpreted as expressing simply 'must *p*'. The syntax and meanings of these examples are therefore mismatched: even though the syntax of *fēi p bù kě* suggests a biclausal construction, it could be understood as one modalised proposition. Additionally, this match may also be enabled by the fact that modals and protasis connectives can share the same syntactic position (§4.2): they can be post-subject. In terms of its position with respect to subject, *fēi* in (13) and (14) therefore can also be interpreted as a modal.

Looking back on instances in §5.2.2.1 where *fēi* is used directively, thereby inviting inferences of deontic modality, we can observe that some of them are also

tinged with epistemic meaning. For example, in (9)–(11), the speakers' advice is not explicitly based on anything 'out there in the world' such as social customs or authority, but their own internal epistemic reasoning that qualifies the statement of *q* 'unless there are/must be a large army' in (9) and 'unless there are/must be sixty thousand men' in (10). The request that *fēi* performs in (11) may have its origin of illocutionary force in the social duty of a strategist that they offer help to whoever recruit them. However, 'unless it is/must be Zǐlóng' ultimately is an expression of the strategist's own epistemic judgement that only Zǐlóng will be able to execute the plans. That is, in these examples deontic and epistemic meanings shade into each other; with respect to the performative context vis-à-vis the addressee, what is said or implied is deontic modality: the addressee must carry out *p*, but the deontic statement ultimately stems from the speaker's epistemic judgement about what is the most desirable act to carry out, given the circumstances. This contrasts with (12), where the modal source supposedly originates directly from the social and political structure of pre-modern China, which is comparatively more 'out there in the world' than just within the emperor's own subjective evaluation. For example, when uttering (12), the emperor probably could also be saying 'By the power invested in me by Heaven', without sounding incongruous.[5]

5.2.2.3 Summary

In sum, §5.2.2.1–§5.2.2.2 show that *fēi* invites inferences of necessary modality in various contexts. The specific modal inferences can be deontic (example 12), epistemic (example 13) or somewhere in between, as in (9)–(11). Crucially, these inferences carry the same illocutionary force as their more literal readings: speakers use *fēi* in particular contexts to direct the hearer to do *p*, or to express their epistemic evaluation of *p* as highly likely. Eifring (1995) accurately identifies one crucial contextual factor: when the apodosis contains *bù kě, bù xīng* or *bù chéng*, pragmatically means 'not good' and evaluates *p* as good or desirable, the protasis

[5] For linguistic interaction with emperors and its historical and social backgrounds in pre-modern China, see Shen & Chen (2019).

can be read as modalised by *fēi* as necessary. However, this is not a necessary condition for inferences of modality to arise; the content of the apodosis can be much more elaborate than *bù kě*, *bù xīng* or *bù chéng*. As long as *q* is used to highlight *p* and evaluate it positively, it is sufficient for *fēi* 'unless' *p* to be read as a PIBU main clause in which *fēi* modalises the whole clause as necessary, under the same force as *fēi p*. For example *q* in (9) is *bù néng shōu jiǎo* 'cannot restrain and defeat'.

5.2.3 The resultant modal *fēi 'must'* construction

Most of the examples above do not suggest that a new modal construction has been created. Evidence for it needs to show that *fēi* can mark an independent clause. Eifring (1995) does not provide any specific date, but examples like (4)–(5) suggest that *fēi* indeed has semanticised 'must' in PDC. (5) is reproduced as (15). (14), repeated as (16), is a curious example in that it is a modal/connective hybrid: formally it is biclausal, yet a conditional reading is less likely.

(15) 我不幹,非在北京城找事

wǒ	bù	gàn,	**fēi**	zài	běijīng	chéng	zhǎoshì
1SG	NEG	do	must	LOC	Beijing	city	job-hunt

'I won't put up with it; I must look for jobs in Beijing.'

(16) 非出人命不可

fēi	chū	rénmìng	bù	*kě*
must	exit	life	neg	possible

'Some will certainly die.'

'?Unless some die, it is not possible.' *Sānxiájiàn* (late 19th–20th c.)

Eifring (1995) also notes that *fēi* is commonly followed by deontic modals of necessity such as *děi*. It is not clear what each component's semantic contribution is in *fēi děi*; it is very likely that *fēi děi* is actually fused, following the PDC tendency towards fusing two historically distinct, monosyllabic modals into one disyllabic

modal.[6] Indeed, the Taiwan Ministry of Education Dictionary lists *fēiděi* as one single entry, meaning 'must', which suggests that it is fused. Lü (1999) treats *fēi* + *děi* as equivalent to *fēi*. The following examples show that *fēiděi* must be a modal, but not a negative copular or conditional connective. The negator *bù* in (17) does not negate connectives. The fact that *fēi*(*děi*) follows *bù* suggests it to be a modal, not a connective.

(17) 不非得在大冬天吃韭黃西紅柿之類

bù	**fēiděi**	zài	dà	dōngtiān	chī	jiǔhuáng	xīhóngshì	zhī
NEG	must	LOC	big	winter	eat	chives	tomato	POS
lèi								
kind								

'I don't have to eat chives, tomatoes or the likes in the middle of winter.'

Eifring (1995: 259)

In sum, these examples indicate that *fēi* indeed has semanticised the meaning of strong necessity modality (i.e. 'must').

5.2.4 Rhetorical uses as subjectification

The patterns above, where *fēi p*, *q* invites inferences of 'must', are a curious instance of *fēi p*, *q* 'unless *q*; only if *p*, ~*q*'. With other uses of *fēi p*, *q*, speakers presumably would assert *q*, according to Dancygier & Sweetser (2003), which forms the main content of the sentence. However, in 'must'-inviting *fēi p*, *q*, *q* actually evaluates *p* positively and serves to rhetorically emphasise *p*, either deontically or epistemically, through various means. First, through reiterating what is contextually presupposed to be salient, or undesirable (the case of 'we cannot defeat them' in example 9), or second, through 'prepackaged', formulaic expressions such as *bù kě*. What unifies both the epistemic and deontic uses of 'must'-inviting *fēi p*, *q* and the

[6] This is known as 'disyllabification'. See §4.2.

evaluative function of *q* in it seems to resemble what Eifring (1995) calls the 'insistence' function of *fēi* (see 5), or in more standard terms; 'a high degree of modal strength'. Users achieve their performative goal (of either 'directing the hearer to do *p*' or 'evaluating *p* as true'), by recruiting *q* evaluatively to lend credence to their insistence on the necessity of *p* (or strong modal evaluation of *p*).

The development is also a case of subjectification (§3.2.3) because *fēi* 'must' has 'externalised' the speaker's perspective on, or modal evaluation of *p*. In 'must'-inviting *fēi p*, *q* the speaker's evaluation was previously expressed more indirectly, through the combination of both *p* and *q*, but with modal *must p*, the evaluation has become more direct, in the sense that *fēi p* by itself conveys the speaker's modal evaluation. That evaluative meanings are subjective has had a time-honoured tradition in subjectification– in as early as Traugott (1989), such meanings were labelled as 'expressive' (see also §6.6 for a brief intellectual history of subjectification). More recently, when discussing quantifiers and focus particles, Traugott also notes that

> "[By] hypothesis, a shift to meanings that are used evaluatively to assess not just more or less quantity, but also more or less quality… always involves subjectification: the evaluative invited inferences are semanticized as part of the meaning of the item that comes to index scalarity". Traugott (2010: 51)

This clearly includes modal meanings as well, which are placed on a scale of modal strength (see also Traugott & Dasher 2002; Coates 1983).

That rhetorical uses can motivate change, including subjectification, has been demonstrated in detail by Waltereit and Detges (e.g. Detges & Waltereit 2002; Detges 2004; Waltereit 2012), who have argued that diachronic rhetorical strategies shape synchronic properties to such extent that the former is reflected by the latter. In the case of *fēi*, it does seem that its diachronic rhetorical uses have left their marks on it. In the majority of PDC instances of modal *fēi*, *bù kě* can be posited to follow *fēi* to emphasise the necessity of *p*. That is, even though *fēi* 'must' *p* is

read as a modal, its origin, 'must'-inviting *fēi p, q* can be recreated by inserting *bù kě*, which is one of the kinds of apodoses that 'must'-inviting *fēi p*, *q* is associated with (recall also that Lü 1999 notes that *fēi* with the meaning of necessity may co-occur with an optional *bù kě*; see §5.2.2.2). For example, (15) can include *bù kě* after *fēi* 'must', which emphasises *p*. This is illustrated in (18).

(18) 我不幹,非在北京城找事不可

wǒ	bù	gàn,	**fēi**	zài	běijīng chéng	zhǎoshì
1SG	NEG	do	must	LOC	Beijing city	job-hunt
(bù	kě)					
(NEG	possible)					

'I won't put up with it; I (absolutely) must look for jobs in Beijing.'

That the clausal status of *bù kě* has 'downgraded' into a modifier that stresses the necessity of *p* is also evident in the conditional protasis. It seems more intuitive to read *fēi* in the conditional protasis as a modal (i.e. 'if X must…), rather than a conditional (i.e. 'if [unless X, ….], ...') because within a conditional protasis it is easier to interpret a modal statement than a conditional statement. Yet, *bù kě* may still appear after *fēi* within the conditional protasis. For example, (19), extracted from the Sinica Corpus of PDC, where *jiǎrú* marks the protasis, shows that *fēi* in the conditional protasis can be a modal, and (20), where the protasis is double-marked by *rúguǒ* and *dehuà*, shows that *bù kě* can occur after *fēi p* 'must *p*'.

(19) 假如非看守門口…

jiǎrú **fēi** kānshǒu ménkǒu…

if must guard door

'If one must guard the door…'

(20) 如果我非去不可的話…

rúguǒ wǒ **fēi** qù bù kě dehuà…

if 1SG fēi marry NEG possible CON

'If I must get married… (then…)'

'If, unless I marry, it is not possible, (then…)' *Sinica Corpus*

While it does make some sense to interpret (20) as 'if, unless I marry, it is not possible…', it is more cumbersome, thus less intuitive than 'if I must marry…'. On the modal reading, *bù kě* is not a clause, but a modifier emphasising the necessity of *fēi*.

(19)–(20) suggest that rhetorical uses of 'must'-inviting *fēi* 'unless' *p*, *q* indeed have left their marks on *fēi p* 'must *p*'; the original biclausal structure can be reconstructed and still continues expressing speakers' insistence on *p*, even in contexts where a biclausal, conditional meaning is not as likely as a monoclausal, modal one. *Fēi p*, *bù kě* in (19)–(20) therefore is like a blend that combines modal semantics and conditional syntax.

Moreover, it is also notable that in the Sinica Corpus of PDC, *fēi* shares with *bù kě* the highest Mutual Information (MI) values among all the words that occur at least five times to the right of *fēi*. This shows that *fēi* is more likely to co-occur with *bù kě* than anything else and suggests that *fēi p*, *bù kě* is a construction. Many examples of *fēi p*, *bù kě* from the Sinica Corpus are like (20) in that *fēi* is more likely to be read as a modal, despite the presence of *bù kě*.[7]

[7] The corpus has a built-in function that calculates MI values, which measure how likely it is for one word to occur next to another word, against how often each of them occurs in the corpus. *Fēi* shares with some lexical words higher MI values than *bù kě* (segmented as one word in the corpus), because they are rare in the corpus in the first place, yet almost only occur next to *fēi*. Capping at five the minimal frequency of a word occurring to the right of

5.2.5 Summary

This section looks at contexts where *fēi* 'unless' *p*, *q* invites inferences of 'must'. It shows in §5.2.2 that when *p* is the 'primary information bearing unit', i.e. the carrier of propositional content and illocutionary force, and *q* evaluates *p* as positive (typically when q contains a negator), *fēi p* may be read as 'must *p*'. Such uses are interpreted in §5.2.4 as rhetorical strategies that speakers use to achieve their performative goals of deontically, 'directing hearers to do *p*' and epistemically, 'evaluating *p* as highly likely'. Crucially, inferences of 'must' are enabled by the fact that both *fēi* 'unless' *p*, *q* and *fēi p* 'must *p*' can perform the same indirect speech act.

The semanticisation of inferences of 'must' is interpreted as a case of subjectification, as speakers' evaluation of *p* has become more direct. Previously, it was through the combination of *fēi* 'unless' *p*, *q* that such an evaluation was expressed, but *fēi 'must' p* directly encodes it.

Finally, it is shown that *fēi* 'must' *p* can combine with 'pseudo-apodoses' like *bù kě* 'not possible', which function as epistemic modifiers that reinforce the evaluation of *p*. Such cases of *fēi* 'must' *bù kě* are interesting in that they blend modal semantics and biclausal, conditional syntax. Such blends will be discussed in more detail in §5.4.

5.3 A constructional analysis

§5.3.1 presents a constructional account of the change from *fēi* 'unless' *p*, *q* to *fēi* 'must' *p*, by visualising the constructions involved. §5.3.2 casts the development in terms of the performative bidirectionality prediction (Ch. 4.5). §5.3.3 summarises.

A few words about speech acts are in order. Deontic modality has been associated with a wide range of directive speech act functions, and the particular shade of deontic modality that is directive is labelled as 'subjective'. Even though

fēi eliminates biases for low-frequency words that naturally would have higher MI values if they happen to occur next to *fēi*.

epistemic modality is also widely recognised as 'subjective' or 'performative' in that it expresses the speaker's epistemic qualification (e.g. Nuyts 2001; Verstraete 2001), typically it has not been associated, at least explicitly, with a speech act function. An exception is Tantucci (2016), who labels the speech act that epistemic modality prototypically performs as *evaluate*, following Nuyts' (2001: 21) definition "evaluation of the chances that a certain hypothetical state of affairs [...] will occur, is occurring or has occurred".[8] Tantucci's label will be adopted here.

Following the practice in Ch. 4.4, a sequence with bracket represents the sequence, without specifying whether it is a construction. A sequence with brackets represents a construction containing the sequence.

5.3.1 Constructions involved in the subjectification process

At the initial stage before any actual change, the [*fēi* 'unless' *p*, *q*] construction has an open clausal slot for the apodosis. However, at this stage, readings of 'must' can already arise, as invited inferences, especially when [*fēi* 'unless' *p*, *q*] is used performatively to express *request, command*, *advise*, *evaluate* or possibly other speech acts, and the apodosis is filled by negated clauses, represented as [*bù* X] (i.e. *bù kě*). Such instances of [*fēi* 'unless' *p*, *q*] are represented more specifically as *fēi p*, *bù* X, to suggest that the apodosis is typically negative (hence evaluates *p* positively; see §5.2.2). *Fēi p*, *bù* X initially is not a construction; it follows compositionally from [*fēi* 'unless' *p*, *q*] and [*bù* X]. The speech acts that *fēi p*, *bù* X can perform are labelled as Y. This is represented below. Similar to the representation used in Ch. 4.4, dashed boxes and lines indicate that they are hypothetical. The [*bì* 'must' *p*] construction is also represented here to suggest that a construct *fēi p*, *bù* X can be interpreted as a construct of [*fēi* 'must' *p*] by analogy with [*bì* 'must' *p*]. Two links are crucial to this analogical association: the horizontal link connects [*fēi* 'must' *p*]

[8] 'Prototypically' is the operative word here because epistemic modality can perform more than *evaluate*. For example, *the bus should be here soon* may be a directive that urges the addressee to get ready to leave, but this is arguably less representative of epistemic modality than *evaluate*. Or in other words, epistemic modality is less conventionalised for directive speech acts (see Ch. 4).

and [*bì* 'must' *p*] (as they share the same semantics but different form; §2.3.1; §4.4.1) and the diagonal link shows that the invited inferencing that the *fēi p*, *bù* X construct is a modal construction can be modelled as analogically motivated by a pre-existing construction, [*bì* 'must' *p*] (which is then horizontally linked to [*fēi* 'must' *p*]; see also §4.4.1). In other words, these links show that the *fēi p*, *bù* X construct can be seen to be analogically involved in a network of constructions, within which [*fēi* 'must' *p*] constructionalises.

The syntax of *fēi p*, *bù* X is represented as [*fēi* (SUBJ) *p*]$_{sub}$[*bù* X]$_{main}$ or [(SUBJ) *fēi p*]$_{sub}$[*bù* X]$_{main}$, where 'main' and 'sub' stand for 'main clause' and 'subordinate clause'. This positional flexibility captures the fact that in null-subject contexts a protasis connective may be interpreted as a modal (§4.2; §4.4.1). The subordinate vs. main clause distinction at this stage is inherited from the [*fēi* 'unless' *p*, *q*] construction (where *q* represents the main clause). However, as the horizontal link, labelled 'inference', shows, this distinction may start eroding at this stage. On the invited reading, the sequence *fēi p* is a main clause modal construction [*fēi* 'must' *p*]. In other words, at this stage, there is potentially a mismatch between form and meaning: the syntax is biclausal but the semantics is modal, which is usually expressed by syntactically monoclausal constructions.

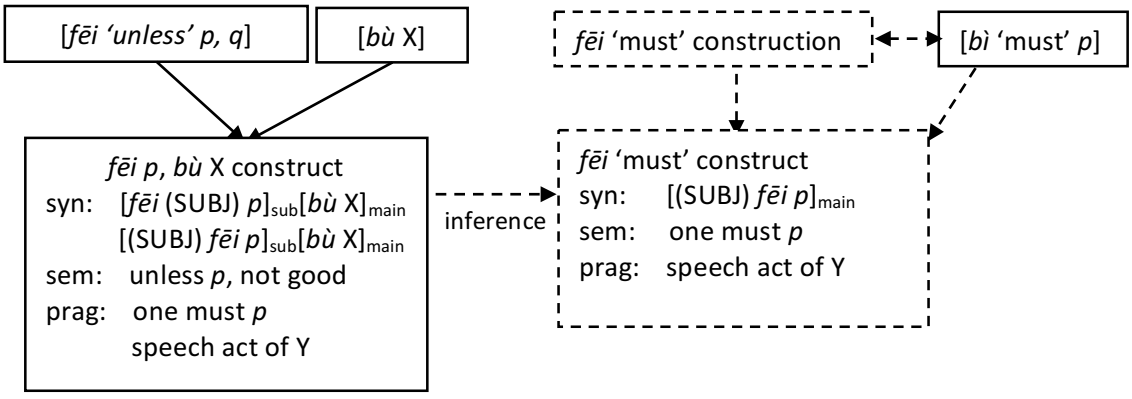

Figure 5.1 Initial stage: invited inferences of *fēi p*, *bù* X as modal

At the second stage, *fēi p*, *bù* X is hypothesised to have crystallised into an indirect speech act construction [*fēi p*, *bù* X] that speakers use rhetorically to insist on the speech act they want to perform with *p*. In the representation in Figure 5.2, the syntax and meanings of [*fēi p*, *bù* X] are represented as the same as those of *fēi p*, *bù* X in Figure 5.1, but it is important to note that the inferences that [*fēi p*, *bù* X] is a modal construction at this stage are probably generalised inferences, rather than merely invited (see Ch. 4 for the distinction). This is because we can observe cases of [*fēi p*, *bù* X] where *bù* X is 'exploited' by the speaker. For example, (14) suggests that functionally *bù* X is probably not a proper clause, but merely a rhetorical device that heightens the intended meaning 'some will die'. The second stage is different from the first stage in that previously *fēi p*, *bù* X was only a construct but has developed into a construction by hypothesis by the second stage.

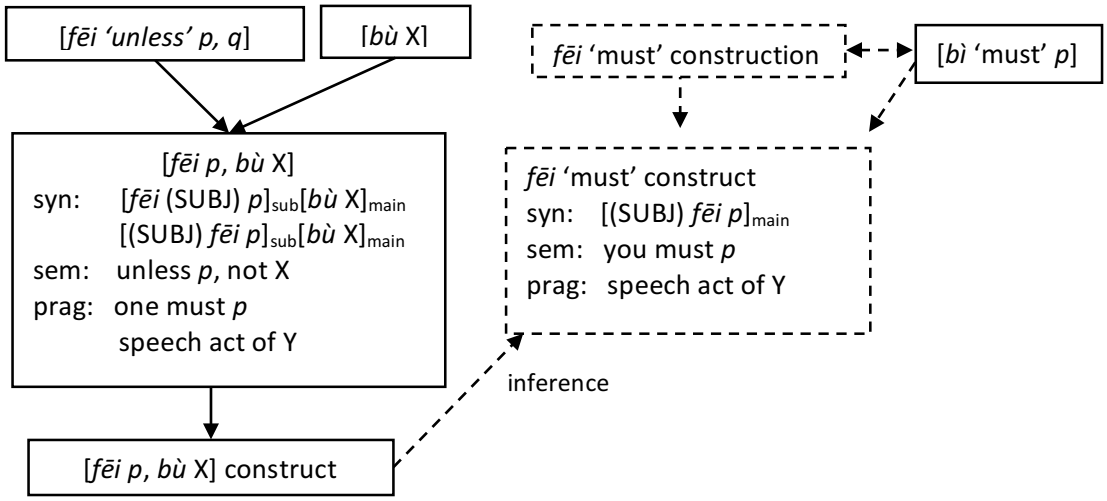

Figure 5.2 Stage two: [*fēi p*, *bù* X] as a conventionalised indirect speech act construction

Finally, inferences of 'must' have semanticised in a new modal construction [*fēi* 'must' *p*]. Evidence comes from *fēi* without any following clause that can be read as the apodosis. Figure 3 represents the change from [*fēi p*, *bù* X] to [*fēi* 'must' *p*] as semanticisation (or more specifically, subjectification), which turns what is pragmatic in the source construction into the semantics of the target construction.

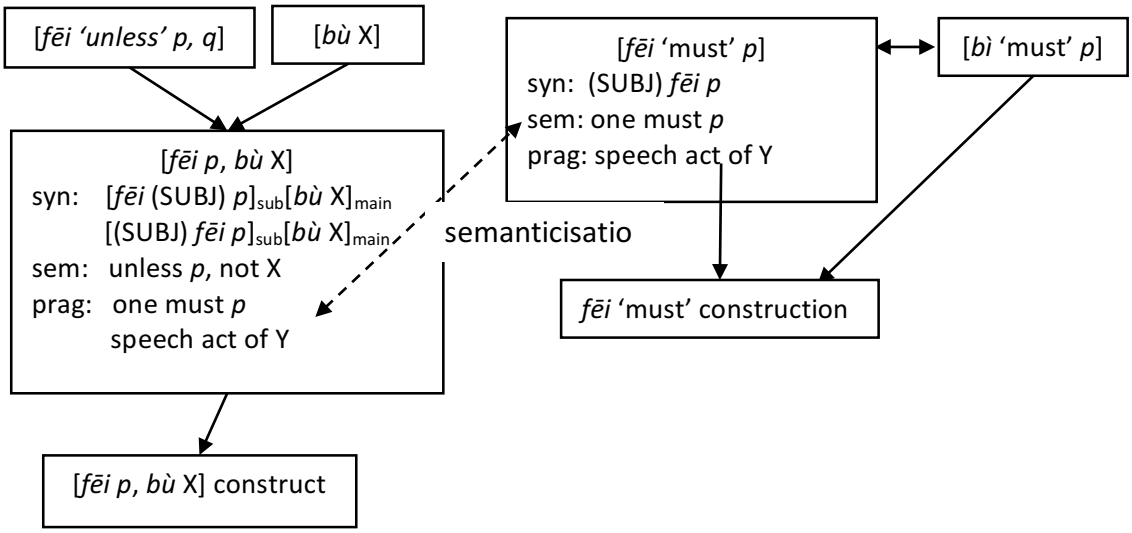

Figure 5.3 Subjectification of [*fēi* 'unless' *p*, *q*] into [*fēi* 'must' *p*]

What has not been represented is cases of modal *fēi* 'must' *p* with a following 'pseudo-apodosis'/'epistemic modifier' such as *bù kě* (see 16 and 18–20). These cases [*fēi p*, *bù kě*] 'must *p*, it is not possible' are peculiar in that they 'blend' modal semantics (*fēi p* in them means 'must *p*') and biclausal syntax, typical of conditional sentences (*bù kě* is a pseudo-apodosis). Other modal-conditional blends can also be found and their structures will be discussed and represented in §5.4, when assessing the merits of a degrammaticalisation analysis.

5.3.2 The performative bidirectionality prediction

Disregarding the contents of the boxes, Figures 5.1–5.3 share many similarities with Figures 4.1–4.3 in Ch. 4. More generally, the schematic patterns involving boxes and lines are nearly identical. More specifically, first, there are multiple sources, which crystallise into indirect speech act constructions from which new constructions emerge. Second, there is 'movement' from pragmatics to semantics between source and target (i.e. semanticisation of inferences). Third, both the source and target constructions are performatively equivalent. This suggests that both

developments are regular, and can be captured by the performative bidirectional prediction:

The performative bidirectionality prediction:

Given semantics X_{sem} in Construction X_{con}, where X_{sem} is the profile equivalent
and
semantics Y_{sem} in Construction Y_{con}, where Y_{sem} is the profile equivalent,

Bidirectionality is possible if the following two conditions are met:

Bidirectional inferencing:

The same performative meaning P can be conventionally expressed by X_{con} and Y_{con}
(so that X_{con} may invite inferences of Y_{sem} and Y_{con} may invite those of X_{sem})

Bidirectional categorisation:

There is no consistently clear formal differentiation between categories encoding X_{sem} and Y_{sem}
(so that X_{con} may semanticise Y_{sem} and Y_{con} may semanticise X_{sem}, i.e. X_{sem} > Y_{sem} and Y_{sem} > X_{sem} are possible)

In the case of *fēi*,

P = *advise*, *command, evaluate*, etc.
semantics X = conditionality X_{con} = *fēi* 'unless' *p*, *bù kě*
semantics Y = modality Y_{con} = *bì* 'must' *p*
X_{sem} and Y_{sem} do not consistently occur in slots where they can be distinguished.

Instead of reductively interpreting bidirectional changes in terms of their semantic categories, the prediction respects construction-specificity by recognising that, first, performativity is also a defining property of constructions, and second, profile-determinants of constructions may not be morphosyntactically highly distinguished. In other words, profile-determinants from different morphosyntactic categories may occur within comparable slots across multiple constructions, so that they are not always consistently distinguished by the constructions they occur in. As argued in Ch. 3, this constructional perspective, which considers generalisations at various levels (e.g. the lower-level indirect speech act constructions and the higher-level, blurred distinction between modals and connectives as profile-determinants), is multidimensional, and can account for patterns of change more precisely than a unidirectional model. Furthermore, the indirect speech act construction [*fēi* 'unless' *p*, *bù kě*] has multiple sources and therefore cannot be easily reduced to a linear representation or labelled as 'primary' or 'secondary' easily (see Chs. 3.4 and 4.4.).

5.3.3 Summary

This section analyses how *fēi p*, *q* 'unless *p*, *q*' developed into *fēi p* 'must *p*', from the perspectives of subjectification and diachronic construction grammar. Overlap between the change from modality to conditionality is emphasised, with both directions of change demonstrated to be predicted by the bidirectionality performative prediction, which requires a schematic understanding that extends beyond the immediate semantic categories involved in the change, as also argued in Ch. 4.5.

There are several proposals that may be considered as alternatives to what has been analysed as subjectification so far. The remainder of this chapter discusses them one by one. The overall argument is that none of them accounts for *bì* or *fēi* as satisfactorily as the performative bidirectionality prediction. Moreover, the constructional perspective that the prediction is based on is essential to our understanding of the changes.

5.4 Degrammaticalisation

Building on the analyses of *bì* and *fēi*, this section considers a 'degrammaticalisation' interpretation of the data. If we generalise over the semantic categories of *bì* and *fēi*, we can observe bidirectionality between 'modality' and 'conditionality'. Or in terms of morphosyntax, there is bidirectionality between modal and protasis connective. This would constitute as an exception to unidirectionality. Therefore, as the traditional grammaticalisation framework would suggest, one of the two directions should probably be 'counterdirectional', or a case of 'degrammaticalisation', the implication being that the development of either *bì* or *fēi* is somehow 'irregular' or 'rare' (see for example, Norde's 2009 characterisation of degrammaticalisation).

If we attempt to preserve unidirectionality in grammaticalisation, we then have to choose between *bì* and *fēi* as 'the odd one out'. Our decision about which one is the 'regular' or 'irregular' one has consequences for our theory of change and linguistic reconstruction. There are at least three approaches that can help us choose, using typological data, Chinese-internal data, and the parameters of 'degrammaticalisation', as proposed by Norde (2009). They are discussed below in §5.4.1–5.4.3, while a verdict is reached in §5.4.4. Building on previous sections, §5.4.5 argues against Ziegeler's (2004) degrammaticalisation analysis of a Chinese modal. §5.4.6 summarises.

Detailed discussion of theories that assume 'layered' or 'hierarchical' clausal structures is left aside here. Suffice it to observe here that bidirectionality poses particular analytical problems in such theories, such as Functional (Discourse) Grammar (Hengeveld 1989; Dik 1997) and Role and Reference Grammar (van Valin and LaPolla 1997), because in their diachronic applications, 'unidirectionality' is interpreted as 'unidirectional development up the clause' (e.g. Functional Discourse Grammar in Hengeveld (2017).', similar to upward (re)analysis in the generative approach (e.g. Roberts & Roussou 2003; Robert 2010). See Narrog 2012b: Ch. 3 for an overview of these approaches.

5.4.1 A typological view on bidirectionality

It is now certain that unidirectionality is not an absolute universal; it has been 'downgraded' into a statistical tendency. Counterdirectional change (i.e. change that goes again unidirectionality) is typically unsystematic, compared to unidirectional change (Norde 2009). Therefore, using typological data, we can infer that whichever direction of development that is typologically rare can be understood as counterdirectional. However, this subsection shows that typological data do not suggest that one of the directions is rare or that it is unsystematic compared to the other one.

Following key publications such as Traugott (1985) and van der Auwera & Plungian (1998), the developmental pathway 'modality > conditionality' seems to be the most typical direction. Germanic verb-first conditionals, for example, have been regarded as grammaticalised from modals (e.g. *should* in "*Should I get sick, look then for a substitute*"; van der Auwera & Plungian 1998:93).[9] This is also related to the observation that subordinate uses, of which conditionals are a type, typically are the results of grammaticalisation (Bybee et al. 1994) and subordinate mood markers grammaticalise from modals (Narrog 2012b), but it is not without exception (Tsangalidis 2004; see particularly Peng 2013, who, examining Chinese clausal constructions from a constructional perspective, shows that hypotaxis structures originate from subordinate structures). Hopper & Traugott (2003) also propose a cline of clause combining, on which subordinate structures develop from a simple juxtaposition of main clauses.

However, it is questionable whether it is indeed true that 'modality > conditionality' is the more frequent one. It may be possible that previous literature is biased towards European languages, as it often is, in which such a pathway is more common. More recently, it has been shown that conditionality can feed into modality in other languages as well, such as Luganda (a Bantu language; Kawalya et al. 2018) and Japanese and Korean (Akatsuka 1992; Akatsuka & Clancy 1993; Clancy

[9] Even though *suppose* is not a modal auxiliary in English, Visconti (2004) has shown that conditional connective *supposing* develops from the epistemic meaning of *suppose*.

et al 1997; Fujii 2004; Unger 2013). While Manchu (a Tungustic language) has not been explicitly claimed to exhibit the pathway 'conditionality > modality', its existence can be inferred from descriptive grammars and related studies (e.g. Gorelova 2002). The Japanese and Korean data have been documented in more detail and are more similar to *fēi*, so they are discussed first, followed by Manchu.

Fujii (2004) is a synchronic constructional analysis of conditional constructions in Japanese that shows how some idiosyncratic conditional constructions are also simultaneously modal constructions; that is, there is gradience between modality and conditionality. Her analysis is built on previous work on Japanese and Korean conditionals as modals (Akatsuka 1992; Akatsuka & Clancy 1993; Clancy et al 1997). (21)–(24), from Fujii (2004: 125), are sentences arranged in terms of decreasing conventionality as conditional constructions (and thus increasing conventionality as modal constructions). The protasis is indicated by the final conditional connective, *–to*. (24) is the least conventionally conditional (but most conventionally modal), mainly used to convey deontic modality, despite the fact that it is marked by *–to*.

(21) Full, bi-clausal conditional construction

hayaku	ikanai	t**o**,	sensei	ni	mo	mihanasarete-simau
early	go.NEG	TO	teacher	by	also	give.up.PASS-ASP
yo						
FP						

'If you do not go soon, your teacher will give up on you.'

(22) hayaku ikanai **to**, taihen.da yo
early go.NEG TO troublesome FP
'If you do not go soon, it will be troublesome.'

(23) hayaku ikanai **to**, ikenai yo.
early go.NEG TO bad FP
'You *must* go soon (lit. 'If you don't go soon, it will be bad').'

(24) hayaku ikanai **to**
early go.NEG TO
'You *must* go soon (lit. If you don't go soon).' Fujii (2004: 125)

Even though not explicitly grounded in diachronic terms or using diachronic data, Fujii's analysis can be given a diachronic interpretation by hypothesis: originally a type of conditional construction like (21) was neoanalysed as a modal construction, as in (24). This can be represented as [NP VP (NEG) CONNECTIVE]$_{\text{protasis}}$ [...]$_{\text{apodosis}}$ > [NP VP MODAL]$_{\text{main clause}}$, or in terms of meaning 'if not *p*, not good' > 'must *p*'. This diachronic interpretation is echoed by Narrog's (2016) diachronic examination of similar construction types in Japanese. Most crucially, Fujii (2004) has observed that in (23), *ikenai* is the most typical apodosis in a *–to* construction that is read deontically. *Ikenai* is not unlike *bù kě* in that they both evaluate the protases rhetorically. Both are not the PIBUs in their respective sentences; the protases are.

There are various constructions similar to *–to* in both Japanese and Korean, where the protasis is the PIBU while the apodosis is rhetorically evaluative. Unger (2013: 341) describe them as "double-negative periphrastic litotes" that express obligation. They can be paraphrased as "it won't do unless PRED [predicate; YHK]", but practically mean "must PRED" (Unger 2013: 342); that is, even though literally they mean 'unless *p*, not good', they actually mean 'must *p*'. (25) and (26) exemplify respectively the Japanese and Korean patterns.

(25) hair-ana-kereba nar-ana-i
enter-NEG-CON become-NEG-IPFV
'You must enter (lit. unless enter, it is unbecoming).'

(26) tul-e ka-ci anh-umyen an toy-nta
enter-INF go-SUSP NEG-CON NEG become-IPFV
'You must enter (lit. if not enter-go, it is unbecoming).'

Narrog (2009:82) also notes that –(*a*)*na-kereba nar-anai*, exemplified in (25) is "*the* typical deontic periphrastic construction of Modern Japanese" (italics original). It is especially noteworthy that Narrog glosses –(*a*)*na-kereba nar-anai* as "'must', lit. 'it does not become if not'" as one modal construction, even though it can actually be decomposed into the protasis 'if not' and the apodosis 'unbecoming; not become'. Narrog (2016: 255) also reports morphosyntactic tests that show constructions such as –(*a*)*na-kereba nar-anai* have decategorised, becoming modal constructions. This also suggests a diachronic scenario similar to *fēi*: the apodosis evaluates, in order to emphasise, the main message carried by the protasis.

Fēi and –(*a*)*na-kereba nar-anai* carry negative semantics, while the –*to* construction described in (21)–(24) also contains a negator. However, the development from connectives to modals does not necessarily require negative semantics; a conditional sentence with the paraphrase '(only) if *p*, it is good' can also give rise to a modal interpretation of '(only) if *p*' as 'can/must *p*'. Unger (2013) hypothesises the Japanese auxiliary *be*- 'must' originated from a biclausal conditional sentence in Old Japanese, 'only if *p* is it good' (see also Fujii 2004 and Narrog 2009, 2016 for more synchronic examples of structures like 'if *p*… it is good' as modals).

Finally, Manchu modal constructions also have their origins in conditional constructions. Typical modal constructions in Manchu have the following form: 'verb stem + converb$_1$, auxiliary + converb$_2$', where converbs are TAM markers or connectives. The choices of items in the 'converb$_1$' and 'auxiliary' slots signal the types of modal constructions, while the 'converb$_2$' slot varies according to TAM, and the dictionary/citation form for 'converb$_2$' is typically the imperfective –*mbi*.

Manchu modal constructions are assumed to have grammaticalised from their literal meanings (Gorelova 2002). For example, 'verb stem + *ki*, *se* + *mbi*' is a volitive modal construction, meaning 'want', where *ki* literally means 'will; shall' and *se*- is the verb stem for the quotatitive verb 'say'. The volitive modal construction 'verb stem + *ki*, *se* + *mbi*' is therefore formally biclausal and literally means '… says "…will [verb stem]"' (Manchu is a verb-final language, so the last

verb, i.e. *se* + *mbi*, is the matrix verb). Its meaning of 'want' probably developed from contexts where both the *ki* marked clause and the *se*– marked one share the same subject, according to Gorelova (2002) and Rentzsch (2012). That is, contexts where 'verb stem + *ki*, *se* + *mbi*' means 'X says 'X will [verb stem]'. Such contexts invite inferences of 'want' because if someone says they will do something, it is implied that they want to do something (see Rentzsch 2012: 857–859 for more details).[10] Using internal reconstruction, we may also propose that two other modal expressions in Manchu develop from conditional clauses. Modals of possibility and necessity in Manchu include:

(27) a. verb stem + *ci*, *o* + *mbi* 'can'
b. verb stem + *ci*, *aca* + *mbi* 'must'

where *ci* is a protasis connective (Gorelova 2002), *o*- is an auxiliary form of 'be; becoming' and *aca*- is the auxiliary form of 'be fitting; appropriate' (Norman 2013).[11] Literally, (27a) therefore means 'if [verb stem], it is becoming/good', while (27b) means 'if [verb stem], it is fitting/appropriate'.

It is plausible that such modal expressions originate from contexts like their Japanese and Korean counterparts: '*if p*, it is [desirable]', where the apodosis evaluates the protasis positively so that the whole sentence takes on a modal force such as possibility and necessity. Moreover, Rentzsch (2012: 866–867) points out that many biclausal negative expressions (or what Unger 2013 calls "double-negative periphrastic litotes"; namely, *if not p*, *it is not good* or *unless p*, *it is not good*) can also be found as modal constructions, meaning 'must', in Manchu, and

[10] Modals of volition (e.g. *want*; *desire*) are treated as modals here, following Narrog (2012a, b), among others (see Narrog 2012b for more detailed review; §4.2). In addition, to streamline the discussion, *ki* is glossed as 'will; shall'. However, Manchurists typically classify it as an optative mood marker ('let's…; may it be…'; Gorelova 2002), but in many contexts it is translated into 'will; shall'.

[11] Gorelova (2002) glosses *aca*- as 'meet'. Nevertheless, following similar types of 'conditionality > modality' in which the apodosis evaluates the protasis, it is more likely that *aca*- as part of the Manchu necessity modal originated from its 'be fitting; appropriate' sense.

other languages that are traditionally labelled as 'Altaic', such as Japanese, Korean, Turkic and Mongolian languages. This suggests that this type of development, from conditionality to modality, may be wide-spread.[12]

In sum, a typological view does not seem to suggest an absolutely clear preference for either direction. Given that the development from conditionality to modality seems to have been reported in non-Indo-European languages, the purported unidirectionality from 'modality' to 'conditionality' may actually turn out to have an Indo-European bias.

5.4.2 A Chinese-internal view on bidirectionality

Judging by the processes involved in the changes of *bì* and *fēi*, there is no ground for labelling either 'modality > conditionality' or 'conditionality > modality' as 'exceptional' or 'irregular'; the processes are essentially identical, as described in §5.3.

Moreover, there is actually more than one case of 'modality > conditionality' and 'conditionality > modality' in Chinese. *Yao* 'have to' has been cited by Traugott (1985) and Yang (1990) as an instance of 'modality > conditionality'. While no study has reported, explicitly, 'conditionality > modality', conditional connectives used as modals can also be found in the corpora. They suggest that 'conditionality > modality' is probably not degrammaticalisation, which is typically idiosyncratic and does not occur on a large scale (see Norde 2009).

For example, *chūfēi* is typically categorised as a protasis connective, meaning either 'unless' or 'only if', depending on what connective heads the apodosis (Eifring 1995; Yang 2007; Wang et al. 2014). However, to maintain a protasis connective categorisation of *chūfēi*, many instances of *chūfēi* require postulating 'invisible clauses' that justify its protasis-marking status. Such instances of *chūfēi* can actually be more suitably analysed as a modal. For example, *chūfēi* in the following example can be analysed as 'would have to', whereas Eifring (1995)

[12] I leave aside the issue where this type of development is areally restricted.

analyses it as having an invisible apodosis ‘you can come out’, so that *chūfēi* can be analysed as marking the protasis.

(28) 你想出來,除非雷鋒塔倒了

nǐ	xiǎng	chūlái,	**chúfēi**	léifēng	tǎ	dào
2SG	want	come.out	would.have	Leifeng	pagoda	fall
le						
PFV						

‘(if) you want to come out, the Leifeng Pagoda would have to fall first!’

However, it is worth noting that *chūfēi* in (28) is neither a canonical connective nor a canonical modal. As a protasis connective, it lacks an apodosis; as a modal, its position is pre-subject, rather than post-subject, the canonical position for modals (see also §4.2 for the morphosyntax of connectives and modals). The ramifications of this hybridity exhibited by *chūfēi* in (28) will be discussed in more detail below.

In the PDC section of the CCL Corpus, examples of *chūfēi* used as a modal can also be found. That is, even though typically recognised as a protasis connective, it may also be used as a modal in a main clause construction that means ‘would have’. For example, in (29) the speaker is complaining about how jealous his wife can get and uses *chūfēi* to mean ‘would have’. An ‘unless’ reading of *chūfēi* would not make sense, and there is no apodosis that can be identified.

(29) 依你這性我除非躺在家裏,不見一個女人不離開你的眼

yī	nǐ	zhè	xìng	wǒ	**chúfēi**		tang	zài	jiā
rely	2SG	DEM	nature	1SG	would.have		lie	LOC	home
lǐ,	bù	jiàn	yī	ge	nǚrén	bù	líkāi	nǐ	de
LOC	NEG	see	one	CL	woman	NEG	leave	2SG	POS
yǎn									
eye									

'To please you, I would have to sit at home all day, see no woman and never be out of your sight.'

The modal meaning of *chūfēi* 'would have' is probably motivated by the 'exceptional' meaning of *chūfēi* 'unless; only if'. According to Yang (2007), *chūfēi* signals that the protasis in *chūfēi p*, *q* is an exceptional event, in that it is not supposed by the speaker to occur under most circumstances. On the reading of *chūfēi* as 'unless', the apodosis refers to the 'default' situation that happens if *p* does not occur, and on the reading of *chūfēi* as 'only if', it refers to the 'exceptional' consequence if *p* does occur.[13] The following table sums up the two meanings of *chūfēi*, and the corresponding apodosis connectives.

***Chūfēi* and the connectives**	***Chūfēi*'s meaning**	**Epistemic statuses of *p* & *q***
Chūfēi p, *cái q*	*Only if p*, *q*	*p* = exceptional; *q* = exceptional
Chūfēi p, bùrán q	*Unless p*, *q*	*p* = exceptional; *q* = default

Table 5.1 Summary of *chūfēi*'s properties, based on Yang (2007)

(30) and (31) illustrate these two different meanings of *chūfēi*. Suppose that the speaker expects it to continue raining tomorrow. In both, the protasis *fàngqíng*

[13] Yang's (2007) analysis is thus compatible with Dancygier's (1998) characterisation of *unless* as '*q*; only if *p*, ~*q*', which can be translated into 'the default case is *q*; in the unlikely case of *p*, ~*q*'.

‘(the weather) clears up’ is then an exceptional event, while *q* in (30), *wo chumen* ‘I go out’, is what happens if the protasis indeed comes true and *q* in (31), *wǒ bù chūmén* ‘I don’t go out’, is the default situation. In (30) *chūfēi* means ‘only if’ because *cái* ‘only then’ marks *q* as what happens if *p* is true. In (31), *chūfēi* means ‘unless’, as *bùrán* ‘otherwise’ marks *q* as the default scenario.

(30) 除非放晴不然我不出門

chúfēi	fàngqíng	**bùrán**	wǒ	bù	chūmén
unless	clear.up	otherwise	1SG	NEG	go.out

‘Unless it’s sunny, I won’t go out.’

(31) 除非放晴我才出門

chúfēi	fàngqíng	wǒ	**cái**	chūmén
only.if	clear.up	1SG	only.then	go.out

‘Only if it’s sunny will I go out.’

Assuming Yang’s analysis is correct, the history of modal *chūfēi* ‘would have’ can be hypothesised to be the semanticisation of the exceptional meaning of conditional *chūfēi*, which implies the speaker’s epistemic evaluation of *p* in *chūfēi p* as highly unlikely or exceptional. This semanticisation is also probably motivated by the equivalence in performativity that *chūfēi* ‘unless’ and *chūfēi* ‘would have’ share: they evaluate *p* as unlikely.

Moreover, in addition to (28), instances of other connectives that display hybrid properties can be found, which suggest vague category boundaries between modals and connectives. (14), repeated as (32) is one example. Formally *fēi* is a conditional connective because it connects two clauses, yet a conditional reading of *fēi* does not make much sense as the speaker is expressing her epistemic judgement, not asserting *q*, *bù kě* ‘not possible’. This is what has been referred to as a blend (18–20 in §5.2.4): modal semantics and conditional syntax are combined.

(32) 非出人命不可

fēi	chū	rénmìng	bù	kě
must	exit	life	neg	possible

'Some will certainly die.'

'?Unless some die, it is not possible.' *Sānxiájiàn* (late 19th–20th c.)

Similarly, *fēiděi* and *chūfēi* in (33) and (34), drawn from the PDC section of the CCL Corpus, are connectives in terms of their pre-subject position, yet their meanings are modal and there is no clause that can be identified as their apodosis. They are therefore also blends, but instead of a biclausal syntax like (32), it is their pre-subject position that indicates their conditional syntax.

(33) 非得她親自把錢送給他嗎?

fēiděi	tā	qīnzì	bǎ	qián	song	gěi	tā	ma
must	3SG	personally	BA	money	give	to/for	3SG	FP

'Must she personally give the money to him?'

(34) 除非你親自喝一口

chúfēi	nǐ	qīnzì	hè	yī	kǒu
would.have	2SG	personally	drink	one	mouth

'You would have to have a drink of it yourself.'[14]

In sum, Chinese-internal data, again, do not indicate clearly whether modality > conditionality or conditionality > modality is the preferred direction of development. In fact, (32)–(34) have conditional syntax: (32) is biclausal, while (33)–

[14] Following Eifring's (1995) analysis, one might want to try to look for a clause, invisible or not, that is the apodosis of *chūfēi* 'unless'. The context for (34) is provided here to show that no such clause can be identified. The speaker first asks herself a question by assuming the voice of the reader: 'you asked me how cold the water is' and then says: 'even if I used up all the adjectives there are, I would not be able to describe it in a way that you could understand it. You would have to have a drink of it yourself'. The original is: *ni wen wo zhe shui zeyang de liang, wo bian ba suoyou de xingrongci shuo jin, ye xingron bu chu gei ni ting*. Finally, she says (34).

(34) have the connectives/modals in presubject position, the canonical position for connectives, but not modals, yet the meanings of (32)–(34) are clearly modal (see also 18–20 in §5.2.4). This suggests a fine line between what is a modal and a connective (for a constructional interpretation, see §5.4.5 below). Recall that causal and concessive subordinators, which can develop into each other in Japanese, also have vague boundaries (Ch. 4.5.2).

5.4.3 Parameters of (de)grammaticalisation

So far in this section, degrammaticalisation has been approached from the perspective of (counter-)directionality that relies on observations that are comparatively more quantitative than qualitative. However, the dataset involving *bì* and *fēi* can also be assessed qualitatively on its own, by applying the model of degrammaticalisation proposed by Norde (2009).

Degrammaticalisation is defined as: "a composite change whereby a gram in a specific context gains in autonomy or substance on more than one linguistic level (semantics, morphology, syntax, or phonology)" (Norde 2009: 120). Inspired by Lehmann's (1995) parameters of grammaticalisation, Norde (2009) proposes the following parameters and associated processes involved in degrammaticalisation.

Parameters	Processes
1. Integrity	Resemanticisation (gain in semantic substance)
	Phonological strengthening (gain in phonological substance)
	Recategorialisation (acquisition of major class morphosyntax)
2. Paradigmaticity	Deparadigmaticisation (closed word class > open word class)
3. Paradigmatic variability	Deobligatorification (increased optionality in specific morphosyntactic contexts)
4. Structural scope	Scope expansion
5. Bondedness	Severance (more bounded morpheme > less bounded morpheme)
6. Syntagmatic variability	Flexibilisation (increased syntactic freedom)

Table 7.2 Parameters and processes of degrammaticalisation, based on Norde (2009: 182)

Each of the parameters is applied to *bì* and *fēi* and the results are discussed below.

1. Integrity: both *bì* and *fēi* have not gained phonological substance. It is more difficult to say if one of them has gained semantic substance. Whether modality or conditionality has more semantic substance may depend on one's theory of semantics. However, assuming the analyses of *bì* and *fēi* are correct, users treat modality and conditionality as performatively equivalent, which suggests that no differentiation is necessarily made between modality and conditionality in usage. Both 'modal' and 'conditional connective' are not major word classes, so 'recategorialisation' does not seem to apply here.

2. Paradigmaticity: neither modals nor connectives are open word classes. However, if 'closed' and 'open' are interpreted as gradient, conditional protasis connectives do seem to form a class slightly less open than modals according to reference grammars (Li & Thompson 1981; Pulleyblank 1995, among others). For example, the list of modals by Li & Thompson (1981: 182 – 183) contains 13 different modals: *yīnggāi*, *yīngdang*, *gāi* 'ought to, should', *néng, nénggòu*, *kěyi* 'be able to, have permission to', *gǎn* 'dare', *kěn* 'be willing to', *děi*, *bìxū*, *bìyào*, *bìděi* 'must, ought to' and *huì* 'will, know how'. Li & Thompson do not identify a specific set of conditional protasis connectives, but out of the connectives they identify, 9 of them are conditional protasis connectives (Li & Thompson 1981: 635): *rúguǒ*, *jiǎrú*, *jiǎshǐ*, *yàoshi* 'if', *chúfēi* 'unless', *jíshǐ*, *jiùshì* 'even if', *yàobùshì* 'if not that',*zhǐyào* 'only if'. Therefore, the change from 'conditionality' to 'modality', as in *fēi* 'unless > must', may be deparadigmaticisation in that it has become more open.

3. Paradigmatic variability: this parameter does not seem to apply, because modality and conditionality are not obligatorily expressed in Chinese. An unmodalised predicate can be interpreted modally and a simple juxtaposition of clauses can be interpreted conditionally (§4.2).

4. Structural scope: *bì* has become biclausal, having previously been monoclausal; therefore, it has undergone scope expansion. Note, however, Norde (2009: 230) points out that 'structural scope' is a problematic parameter, as it can expand or reduce in (de)grammaticalisation.

5. Bondedness: this does not apply to isolating languages in general (Norde 2009: 238), as functional items in isolating languages are typically not as bound as their counterparts in non-isolating languages (even though isolating languages can still have morphophonologicalliy bound functional items, i.e. *le* in Chinese; Li & Thompson 1981).

6. Syntagmatic variability: conditional connectives are more flexible in that they can precede or follow the subject. Therefore, *bì* has gained more syntactic freedom as a conditional connective (leaving aside the issue of whether this flexibility is too Chinese-specific to be a diagnosis for syntagmatic variability).

Table 5.3 sums up the results. 'V' indicates that the parameter yields a positive result.

Parameters	Processes	*bì* ('must' > 'only if')	*fēi* ('unless' > 'must')
1. Integrity	Resemanticisation	Not applicable	Not applicable
	Phonological strengthening	Not applicable	Not applicable
	Recategorialisation	Not applicable	Not applicable
2. Paradigmaticity	Deparadigmaticisation		V
3. Paradigmatic variability	Deobligatorification	Not applicable	Not applicable
4. Structural scope	Scope expansion	V (?)	
5. Bondedness	Severance	Not applicable	Not applicable
6. Syntagmatic variability	Flexibilisation	V	

Table 5.3 Parametric results for *bì* and *fēi*, based on Table 5.2

The parametric tests are barely applicable. While two parameters can describe the development of *bì*, one of them, 'structural scope', is problematic. If 'structural scope' is excluded, *bì* and *fēi* each have one positive result. Regardless, the small number of positive results suggests that neither *bì* nor *fēi* has undergone degrammaticalisation.[15]

[15] There is another approach, that of Company Company (2018), who regards 'upgrading' (cf. 'downgrading', as is canonically associated with grammaticalisation) as a kind of directionality. However, she specifies that the kind of upgrading is from 'sentence grammar' to 'periphery grammar'. Her distinction between 'sentence' and 'periphery' grammars follows 'Thetical Grammar' (Kaltenböck at al. 2011), the former of which involves tighter syntactic relations, while the latter is "the domain of extra-clausal constituency, no constituency, and weak or loose syntactic relations" (Company Company 2018: 362).

5.4.4 Degrammaticalisation: a verdict

There is no non-arbitrary reason to privilege either direction of change. Crosslinguistic parallels of either direction can be found, but there does not seem to be an unambiguous preference for either. Moreover, Chinese-internal data obscure rather than illuminate any possible unidirectional tendency towards modality or conditionality. Looking at the cases of *bì* and *fēi* from a constructional perspective, it appears that both have undergone grammaticalisation. Or more specifically, both developments are cases of grammaticalisations that involve the semanticisations of inferences. There are changes in grammaticality in that compared to the immediate source constructions, *fēi*… *bù* X and *bì… then*, which invite respectively inferences of modality and conditionality, the target constructions, *fēi* 'must' and *bì p*, *q* 'only if', have conventionalised modality and conditionality as their grammatical features. Note also that neither development could be appropriately labelled as 'secondary grammaticalisation': the main semantic change involved, 'semanticisation via invited inferencing', can happen regardless of stage of development and both developments have multiple sources (see also Chs. 3.4 & 4.4).

From a diachronic perspective, neither modality nor conditionality is structurally more 'grammaticalised', at least in Chinese. It appears, then, modals and conditionals can 'flip-flop' in Chinese. If one is to reconstruct the history of a Chinese modal or conditional, unidirectionality would be an unreliable principle. Take for example, *xūshì*, composed of *xū* 'require; must; should' and *shì* 'and or therefore; proximative demonstrative; copula'. Its conditional and modal uses are exemplified below.

Conditional connectives do not fall within the realm of 'periphery grammar'; they actually involve syntactic relations between two clauses (in addition to those between the connectives and the protases/apodoses). Therefore, Company Company's (2018) classification of directionalities cannot satisfactorily accommodate the cases here; one would still be forced to pick either direction as 'directional' or 'counterdirectional'.

(35) 官人須是悄悄過去

guān rén **xūshì** qiāoqiāo guò qù

official person must silently pass go

'My lord must silently pass through it.' *Shuǐhǔzhuàn* (14th c.)

(36) 須是我親自去和哥哥商議方可行此一件事

xūshì wǒ qīnzì qù hé gēgē shāngyì

only.if 1SG personally go join older.brother discuss,

fang kě xíng cǐ yī jiàn shì

only.then can execute DEM one CL matter

'Only if I go to discuss it with him can we do it.' *Shuǐhǔzhuàn* (14th c.)

Without any historical investigation, it is not clear whether *xūshì* arose first as a modal or connective, or which sense of *shì* gave rise to *xūshì*.

That there is no unidirectionality between the semantic/grammatical categories of 'modality' and 'conditionality' does not mean that it cannot be predicted, however. As posited in Ch. 4 and §5.3.2 bidirectional shifts involving performativity can be predicted.

What emerges from this discussion is that the search for unidirectionality between semantic or morphosyntactic categories can be too naïve and overlook construction-specific details. Crucial to the performative bidirectionality prediction is the fact that it does not reduce constructions to their semantic or morphosyntactic categories. First, performativity is taken into consideration and recognised as a relevant feature of constructions. Second, it places greater emphasis on the 'ecology' or the 'constructicon' within which constructions come into being. As detailed in Ch. 4, the Chinese constructicon does not sharply distinguish conditional connectives and modals, allowing each of them to be neoanalysed as the other.

5.4.5 A constructional view on modality and conditionality in Chinese

Building on the arguments against a degrammaticalisation analysis of 'conditional > modal', this section considers a purported case of 'degrammaticalisation' in Chinese (Ziegeler 2004), which has been cited in key publications on degrammaticalisation (e.g. Norde 2009; Trousdale & Norde 2013; Viti 2015). This analysis is actually an 'artefact' that results from assumptions about unidirectionality and an analysis that does not consider in enough detail the Chinese constructicon and its history.

Ziegeler (2004) argues that *děi* has degrammaticalised from a modal to a lexical verb meaning 'need; require', citing two examples from Lü's (1999: 166) as her evidence. The first one is (37).

(37) 這個工作得三個人

zhè	ge	gōngzuò	**děi**	sān	ge	rén
DEM	CL	work	need	three	CL	person

'This work needs three people.'

(37) is not sufficient evidence. NPs with classifiers such as *sān ge rén* in Chinese can be used as predicates and canonical modals do occur between subject NPs and such phrases.[16] (38) shows that *liǎng suì* 'two years' is used as a predicate. (39) and (40) shows that *kěyǐ* and *bìxū*, both categorised as modal auxiliaries by Li & Thompson (1981: 183) because they occur in modal constructions that verbs do not (see §4.2 for more details), can appear immediately before NPs with classifiers. So can *fēiděi* in (41), a close relative of *děi* (see §5.2.5).

(38) 已經兩歲

yǐjīng	liǎng	suì
already	two	years

'(The kid) is already two years old.'

[16] The question whether classifiers are heads or not is left aside here. For NPs as predicates, see Shi (2000: 395–396)

(39) 可以六到十二個小時

kěyǐ	liù	dào	shí	èr	gè	xiǎoshí
can	six	to	ten	two	CL	hour

'It can be/take six to twelve hours.'

(40) 寬度必須八公尺以上

kuān	dù	**bìxū**	bā	gōngchǐ	yǐshàng
wide	degree	must	eight	meter	over

'The width must be over eight meters.'

(41) 一趟非得三天以上

yī	tang	**fēiděi**	sān	tiān	yǐshàng
one	journey	must	three	day	over

'A journey must be over three days long.'

Ziegeler's other piece of evidence is (42).

(42) 別人去不行,得你親自去

bié	rén	qù	bù	xíng,	**děi**	nǐ	qīnzì	qù
other	people	go	not	ok	need	you	in-person	go

'It's not ok for other people to go, it requires that you go in person.'

Translated and glossed by Ziegler (2004: 124)

(42) is less easy to refute. *Děi* in (42) is pre-subject; therefore, it cannot be a canonical modal. However, that does not necessarily mean that it is a lexical verb. First, it is possible to replace *děi* with *chūfēi* 'unless; only if' and *fēi* 'unless' in their conditional sense, as in (43). This suggests that *děi* in (42) may be developing a conditional sense.

(43) 别人去不行,(除)非你親自去

bié	rén	qù	bù	xíng,	**(chū)fēi**	nǐ	qīnzì	qù
other	people	go	not	ok	unless	you	in-person	go

'It's not ok for other people to go, unless you go in person.'

Second, conditional uses of *děi* that means 'if' can be found in the Sinica Corpus of Early Mandarin. The following instances of *děi* are pre-subject, a position where modals are less likely to appear but a canonical position for conditional connectives, and its only plausible semantic is 'if'. These examples do not necessarily suggest that Ziegeler's example of *děi* is not a degrammaticalised modal, but they indicate that it is plausible that her example of *děi* may be developing clause-linking, conditional uses.

(44) 得你明日不來,我與你答話

děi	nǐ	míngrì	bù	lái,	wǒ	yǔ	nǐ	dáhuà
if	2SG	tomorrow	NEG	come	1SG	with	you	tell.off

'If you don't come tomorrow, I'll tell you off.'

(45) 得你這般說,就好了

děi	nǐ	zhè	bān	shuō,	jiù	hǎo	le
if	2SG	DEM	look	say	then	good	PFV

'If you say so, then it's good.' *Jīnpíngméi* (17th c.)

Third, *děi* in (38) may pattern with non-canonical modals such as *fēi*, *chūfēi*, and *fēiděi* 'must' with respect to the mismatch between conditional syntax (presubject) and modal semantics. (32)–(34), reproduced as (46)–(48), show that *fēi*, *chūfēi*, and *fēiděi* can be non-canonical modals; they can be in pre-subject

position (as in 47–48) and sometimes with a following 'pseudo-apodosis' like *bù kě* (as in 46).[17]

(46) 非死不可

fēi	sǐ	bù	kě
unless/must	die	NEG	possible

'You certainly will die.'

'?Unless you die, it is not possible.'

(46) 非出人命不可

fēi	chū	rénmìng	bù	kě
must	exit	life	neg	possible

'Some will certainly die.'

'?Unless some die, it is not possible.'

(47) 非得她親自把錢送給他嗎?

fēiděi	tā	qīnzì	bǎ	qián	sòng	gěi	tā	ma
must	3SG	personally	BA	money	give	to/for	3SG	FP

'Must she personally give the money to him?'

(48) 除非你親自喝一口

chúfēi	nǐ	qīnzì	hè	yī	kǒu
would.have	2SG	personally	drink	one	mouth

'You would have to have a drink of it yourself.'

These interpretations of *děi* as either a non-canonical modal that patterns with *fēi*(*děi*) in (46)–(47) or a connective, as in (44)–(45), are especially plausible if we consider the diachronies of modals and connectives as a whole and draw parallels with the category of English modal auxiliaries.

[17] (47)–(48) were deliberately chosen to include the sequence "modal + pronoun + *qīnzì* 'in person'" to approximate the context of (38), '*děi* + *nǐ* '2SG' + *qīnzì*', in order to highlight that (38) is not as idiosyncratic as Ziegler (2004) implies.

As has been demonstrated, a Chinese modal or protasis connective may be vague in its categorial status (§4.2) and diachronically a modal can develop into a protasis connective and vice versa. In other words, there is heterosemy (e.g. Lichtenberk 1991a; Traugott & Trousdale 2013) between modal and conditional constructions. An item's category status, such as that of *xūshì* in (35)–(36), therefore depends on whether it occurs in a modal or a conditional construction.

The gradience between the categories of modality and conditionality resembles in some respects the gradience between core and marginal modal auxiliaries in English. Sometimes, one can expect 'blending' (De Smet 2013) of category properties, while there is 'variation' across the population with regard to category statuses. *Dare, need* and *ought*, for example, vary between core and marginal modals in terms of their complement-taking behaviour (for more details see Krug 2000: Ch. 5), and sometimes they appear in blended structures that combine some properties of core and marginal modal properties. For example, *dare* in (49) inherits from both core modal syntax (bare infinitival complement) and marginal modal syntax (do-support).

(49) I didn't dare ask

Krug (2000: 200)

(cf. non-hybrid core *I daren't ask* and non-hybrid marginal *I didn't dare to ask*)

Bare *better* for most users is a marginal modal (see Denison & Cort 2010; Traugott 2016 for a review). Yet instances of it in constructional slots typically reserved for core modals are attested, such as the [AUX'*nt*] slot in the tag question construction, as in (50). This suggests that *better* exhibits morphosyntactic variation across the English speaking population.

(50) lol well you better start staying in then betternt you!!!!!! lol

Denison & Cort (2010: 380)

Similarly, the Chinese modal and conditional categories may also be blended, while speakers do not uniformly agree on how to categorise non-canonical expressions. Ziegeler (2004) reports that her informants do not uniformly accept (38). Crucially, some of them "claim that the use in [38] only stands if another clause is added after the object", while others find it quite idiomatic and conveys the meaning 'should; need; must' (Ziegeler 2004: 124). Those who claim that a clause is missing may interpret *děi* as a conditional connective, while others who accept (38) may treat it as a modal (albeit a non-canonical one, because *děi* in 38 is pre-subject). Ziegeler's example of *děi* in (38) may thus be the result of blending: modal semantics and the pre-subject syntax of the conditionals are combined together. This blending is illustrated in Figure 5.4, which shows that this structure inherits its semantics from the modal schema and its syntax from the protasis in the conditional schema. (33)–(34), reproduced as (47)–(48), also instantiate the same structure: modal semantics with the syntax of the conditional protasis.

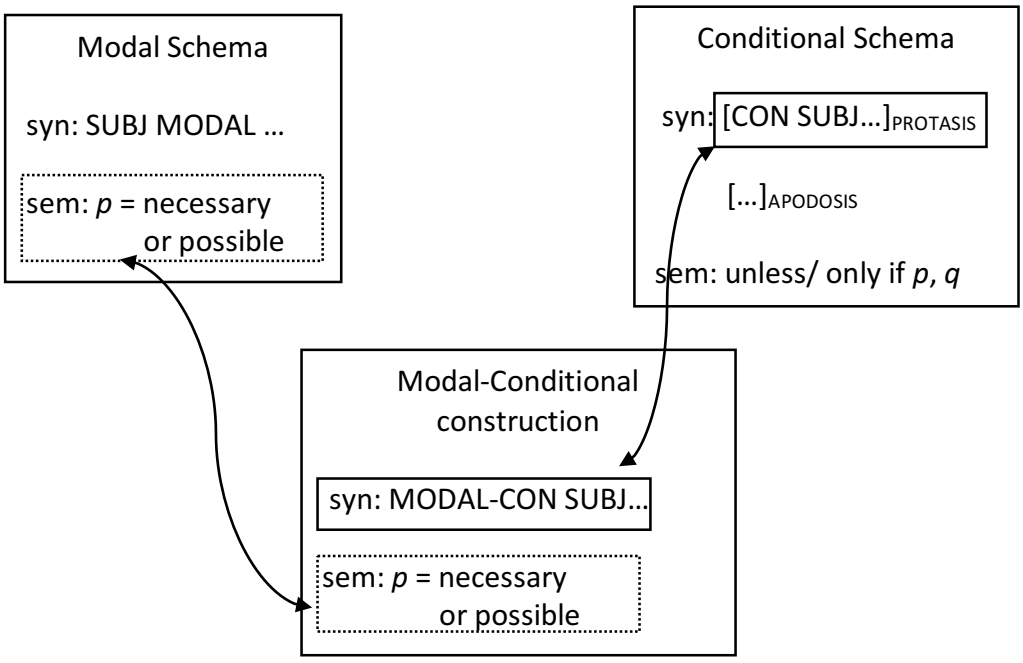

Figure 5.4 Blending of the modal and conditional schemas

(32) (i.e. 46) is similar to Figure 5.4: it blends modal semantics with the biclausal syntax of conditionals (with the 'pseudo-apodosis').

In conclusion, regardless of how to interpret *děi* exactly (a connective or a modal), a diachronic constructional perspective suggests that *děi* is not untypical of modals and connectives in Chinese, far from the exception to regular language change that Ziegeler (2004) and the subsequent literature on degrammaticalisation have made it out to be.

5.4.6 Summary

§5.4 has presented arguments and evidence for a constructional analysis of both 'modal > conditional' and 'conditional > modal'. On a lexicalist view, Chinese modals and conditional connectives can display "systematic polysemy" in that they have, respectively, related conditional and modal senses (cf. Givón 1991, who describes a group of complement-taking verbs as having "systematic polysemy"). From a constructional perspective, there is 'heterosemy' (diachronically related sense relation; Traugott & Trousdale 2013, citing Lichtenberk 1991a) between modal and conditional connective schemas, so whether an item is a modal or a connective depends on which of the schemas it occurs in. This constructional view has enabled us to refute the degrammaticalisation analysis of *děi* by Ziegeler (2004), and contributed to the understanding of degrammaticalisation in general: one cannot hastily write off a direction of development as 'counterdirectional' or 'degrammaticalisation' without considering a language's constructicon, within which such change may be well motivated.

5.5 Insubordination

This section approaches the development of *fēi* from the perspective of 'insubordination'. Assuming that subordination is a process or result of grammaticalisation, insubordination can be characterised as 'late-stage' in that it follows and builds on subordinate structures, so it is highly relevant to *fēi*. However,

after introducing the concept and Evans' (2007) model in §5.5.1, 'insubordination' as both a theory and a descriptive label is rejected in §5.5.2.

5.5.1 A brief introduction to insubordination

Insubordination has been generating a lot of interest recently (e.g. D'Hertefelt & Verstraete 2013; Evans & Watanabe 2016). It is first proposed and defined by Evans (2007) as "the conventionalised main clause use of what, on prima facie grounds, appear to be formally subordinate clauses" (2007: 367). Evans (2007) draws his examples from various languages. A particularly relevant example is Dyirbal 'implicated clause marker', *–gu* and its allomorph *–li*, which "normally indicate that the subordinate clause is a consequence of the main clause", but has become a main clause modal. *–gu* is exemplified in (51), where the relevant words are in bold (some phonological and/or phonetic aspects of the transcriptions are omitted).

(51)	balan	dugumbil	bangul	yara-nggu	balga-n,
	DEM.ACC	woman.ACC	DEM.ERG	man-ERG	hit-NP
	badi-gu				
	fall-IMPL				

'Man hits woman, causing her to fall down.'

Dixon (1972: 68; glossing based on Evans 2007: 402)

Citing Dixon (1972), Evans (2007) notes that the clause that *–gu/-li* attaches to can be used as a main clause where *–gu/-li* means 'must' or 'has to'.

(52)	bayi	yara	**yanuli**
	DEM.NOM	man.NOM	**go.IMPL**

'The man has to go out (for some reason).'

Dixon (1972: 69 glossing based on Evans 2007: 402)

Evans (2007) proposes a four-stage process of insubordination, represented below.

Subordination	Ellipsis	Conventionalised ellipsis	Reanalysis as main clause structure
A	B	C	D
Biclausal construction, with subordinate clause	Ellipsis of main clause, any contextually appropriate material can be recovered	Restriction on interpretation of ellipsed material	Conventionalised main clause use of formerly subordinate clause

Table 5.4 A diachronic model of insubordination, based on Evans (2007)

Fēi definitely fits the profile of an 'insubordinate' (a subordinate clause used as a main clause). However, does it mean that Evans' (2007) diachronic model of 'insubordination' can capture the development of *fēi*? Or is 'insubordination' even an appropriate label for *fēi*? If so, should 'insubordination' be part of the taxonomy of change in a constructional framework?

5.5.2 A critique of insubordination

First, the diachronic model of insubordination does not predict precisely the development of *fēi*. It does not identify what role the apodosis, or indeed any apodosis, plays in the development. Moreover, as established in §5.2.4, ellipsis actually does not necessarily happen; *fēi* and *bù kě* continue to co-occur.

Second, what seems like an insubordinate may actually fall out from the 'blending' of modal and conditional properties, instead of a diachronic process of insubordination. The blended modal-conditional construction described in Figure 5.4 may appear to be an insubordinate because the clause-initial position of the slot [MODAL-CON] suggests its subordinate clause status, yet the construction is monoclausal. Without any prior knowledge, one would then hypothesise that any

blended expression has gone through the insubordination process in Table 5.4. However, this incorrectly predicts that an item in the slot is an insubordinate travelling along 'conditional > modal', when in fact it may be on the 'subordination' journey, 'modal > conditional' (as *děi* probably is). While for other items on the trajectory 'conditional > modal', it may be plausible that a novel blend may be a result of insubordination, it does not leave any room for the possibility that a blend may be produced spontaneously, or that for some speakers the blended construction in Figure 5.4 may be well-entrenched enough to allow for novel modals or connectives in the [MODAL-CON] slot.

Since Evans (2007), there have been alternative proposals or refinements (e.g. Mithun 2008; papers in Evans & Watanabe 2016). Insubordination as a theory therefore has no longer been exclusively associated with the model described in Table 5.4. However, no matter how it is modelled, 'insubordination' is rejected as an appropriate label for *fēi* on grounds of its two conceptual problems: its associations with 'unruliness' and 'degrammaticalisation'.

'Insubordination' has been commonly characterised as somewhat exceptional (cf. Beijering 2018: 349: "insubordination is currently a hot topic in linguistics due to an ever-increasing interest in *irregular* and/or *defective* structure" [italics mine]). However, Traugott (2017) observes that that many roots of insubordination lie in interactional practices, during which utterances can be, in the traditional sense, incomplete clauses. Therefore, many 'prima facie' cases of 'insubordination' may not be 'irregular' or 'unruly', because they are actually well-behaved linguistic units following typical communicative practices (see Struckmeier & Kaiser 2019 for similar criticisms against insubordination). Rhetorically manipulating what information that the protasis and the apodosis are supposed to encode 'canonically' (but not 'always') is a communicative practice that is probably universal, not specific to *fēi*. This implies that the invited inference of 'must *p*' from 'unless *p*, not good' could be universal (see Traugott & Dasher 2002 on the universality of invited inferences; Ch. 4.3.3). The development of *fēi*, then, does not seem so unruly, if it can be accommodated in the IITSC.

Moreover, insubordination has also been associated with degrammaticalisation, which implies that it is somehow an exception in language change (for example, Traugott 2017 cites Higashiizumi 2006 on insubordinate *because*; Brinton 2014 on insubordinate *as if*). This link of thinking proposes that the subordinate clause 'upgrades' to main clause status and loses its dependency on the main clause, which is 'counter-directional' because 'downgrading' and 'increased dependency' are supposed to be the norms. However, to use Traugott's (2017) word, this is but "artefacts" of various assumptions. First, insubordination presupposes a universal category of 'subordination', hence a distinction between the main (complete) vs. subordinate (incomplete) clause, but this is far from uncontroversial. Discourse grammarians have long noted that the main vs. subordinate distinction is blurred, especially in interactional conversation (e.g. see the collection of papers edited by Haiman & Thompson 1988; Thompson & Mulac 1991) and typologists have observed that 'subordination' is construction- and language-specific (Croft 2001; Cristofaro 2008). Second, according to Traugott (2017: 293), insubordination typically assumes Lehmann's (1995) view of grammaticalisation as reduction and Haspelmath's (2004) proposal of grammaticalisation as increased dependency. Nevertheless, grammaticalisation can involve both expansion and decreased dependency (e.g. Traugott & Trousdale 2013). It is difficult to disassociate insubordination from these artefacts, as they seem to be built into the concept of insubordination (as the non-technical use of the term insubordination 'disobedience; defiance' implies). If *fēi* is labelled as 'insubordination', the association with degrammaticalisation then would seem inevitable. However, as established above, the development of *fēi* is not degrammaticalisation.

In sum, the development of *fēi* is a regular case of semanticisation via invited inferencing (specifically, subjectification) and can be accounted for by the performative bidirectionality prediction. It is not clear what kind of theoretical benefits one could gain from labelling it as 'insubordination', which incorrectly presupposes a universal category of subordination and implies that its reversal is

somehow unruly. Subordination is probably construction and language-specific (Cristofaro 2008), like most syntactic categories (Croft 2001), and in interactive contexts, the complete clause may be 'a myth', to use Bergs' (2017) word.

5.6 Texualisation, or increases in textual orientation

This section explores the possibility that regularity can be captured not only by the performative bidirectionality prediction, but also by a tendency towards 'textualisation' in semantic change. By doing so, this section also evaluates the place of 'textual meaning' in the IITSC: whether its development is on a par with subjectificaction or (inter)subjectification. The origin of 'textual' meaning in the Traugottian model of subjectification is reviewed briefly in §5.6.1, followed by a discussion of more recent proposals to modify it in §5.6.2. In §5.6.3, Narrog's proposal for 'increases in textual orientation' is examined in more detail. In §5.6.4, it is concluded that there is no need to assign textual meaning an independent status in the ontology of (inter)subjective meaning or regard its development as distinct from subjectification or intersubjectification.

5.6.1 Textual meaning in subjectification

This subsection briefly reviews the status of textual meaning in Traugott's approach to (inter)subjectification over the years. Many researchers (e.g. Breban, Narrog, Ghesquière, etc.) regard textual meaning as a component of (inter)subjectification, drawing on Traugott's earlier research. Traugott (1989) proposes the following cline to account for tendencies in semantic change, based on Halliday and Hansan's systemic functional grammar: propositional > (textual) > expressive. This cline is unpacked by the following elaborations. Tendency II describes the rise of textual meaning, while tendencies I and III that of expressive meaning.

Tendency I: Meanings based in the external described situation > meanings based in the internal (evaluative/perceptual/cognitive) described situation.

Tendency II: Meanings based in the external or internal described situation > meanings based in the textual and metalinguistic situation.

Tendency III: Meanings tend to become increasingly based in the speaker's subjective belief state/attitude towards the proposition.

Traugott (1989: 34–35)

Note that expressions of textual meaning are "resources available for creating a cohesive discourse" (Traugott 1982: 248), such as connectives, anaphoric and cataphoric pronouns, topicalisers, relativisers, complementisers, etc.

However, textual meaning plays a much more minor role in Traugott's more recent work. In Traugott (1995), textual meaning is taken out of the cline, as she remarks that "the internal ordering [with respect to textual and expressive meanings] is not always supported". That is, in some cases textual meaning actually does not precede expressive meaning, but follows it.

In her more recent works (Traugott 2003, 2010, 2012), 'expressive' has come to be replaced by and further differentiated into 'subjective' and 'intersubjective'. The cline therefore is: non-subjective > subjective > intersubjective (note that any change does not have to go 'all the way'). Intersubjectivity is hypothesised to be subjectivity's extension in terms of its degree and chronological development. (Inter)subjectification is then the diachronic process whereby (inter)subjectivity becomes the coded meaning of a linguistic expression. More specifically, (inter)subjectification is defined as follows:

> "Subjectification is the mechanism whereby meanings come over time to encode or externalise the SP/W's [speaker/writer] perspectives and attitude as constrained by the communicative world of the speech event, rather than so-called 'real-world' characteristic of the event or situation referred to."
>
> Traugott (2003: 126)

> "Intersubjectification is the semasiological process whereby meanings come over time to encode or externalise implicatures regarding SP/W's attention to the 'self' of AD/R [addressee/reader] in both an epistemic and a social sense." Traugott (2003: 129-130)

Crucially, 'textual meaning' no longer figures in Traugott's recent works as prominently as her pre-1995 ones (Traugott 1982, 1989). Its development, or 'textualisation', has been integrated into subjectification instead. This is most evident in Traugott's description of the subjectification of *in fact* (italics mine): "to the extent that *speakers/writers* choose textual connectives of various kinds to signal their perspective on the relationship between clauses, sentences and discourses, *they choose clause linkers such as causals and conditionals to signal coherence and create textuality, thus expressing their subjectivity*" (Traugott 2007: 298; see also Schwenter & Traugott's 2000 account of *in fact*).

5.6.2 Call for a return of textual meaning

Followers of the Traugottian line of research on subjectification, such as Narrog (2005, 2010, 2012a, b), Breban (2006, 2010b), Ghesquière (2010), and Ghesquière et al. (2012), all suggest, to varying degrees, a return to Traugott's pre-1995 position on textual meaning; that is, textual meaning should have its own place in theory of semantic change. The specifics differ, of course. For Ghesquière (2010), textual meaning can be either subjective or intersubjective, and it feeds into expressive meaning, which can also be subjective or intersubjective. By expressive meaning, she means the speaker's belief state/attitude towards the proposition, as in Traugott's (1989) Tendency III. Narrog (2010, 2012a, b, 2015), however, proposes that textual meaning develops out of subjective or intersubjective meanings. Brems et al. (2012), zooming in on intersubjectivity, proposes three subtypes of intersubjectivity, textual intersubjectivity being one of them.

What complicates the matter further is that researchers draw their data from different domains of grammar. Narrog focuses on modality, Breban and

Ghesquière on the English noun phrase, and Ghesquière et al. on hedges, question tags, focus markers, and backgrounding devices, etc. Therefore, it might be questioned, for example, whether what Breban and Ghesquière mean by 'textual (inter)subjectivity' indeed corresponds to other researchers', or whether textuality in noun phrases could be considered on a par with, for example, modal expressions. As Narrog (2012a, b, 2015) points out, different domains of grammar might exhibit different tendencies. The same observation is also made by Ghesquière at al. (2012).

Another important difference that has not been commented on is that the domain of modality is intimately connected with performativity, while the nominal domain is not as much. For this reason, Narrog's proposals regarding textual meaning will be the focus next, as he is specifically concerned with modal meanings.

5.6.3 Narrog's increases in discourse orientation

Narrog (2012a, b) propose that semantic change in modality is captured by increases in speech act orientation, which is further divided into three subcategories: increases in speaker, hearer, and discourse/textual orientations. 'Speech act orientation' is defined below:

> "A modal marker is speech act-oriented if it is directly linked to the speech act situation, i.e. the speaker's own modal judgment at the time of speech in the given speech situation, her or his attention to the hearer, or to the speech situation, i.e. discourse or text, itself." Narrog (2012b: 49)

Speaker and hearer orientations roughly correspond to Traugott's subjectification and intersubjectification, while discourse orientation is equivalent to textualisation. Narrog (2012b) notes that textualisation can be independent of (inter)subjectification and Narrog (2015) proposes that textualisation is likely to be a more advanced stage of development than (inter)subjectification.

To exemplify textualisation, which describes the development of complex clause structure, Narrog (2012a) discusses three examples: modal *may* > concessive *may* (Palmer 1990; Sweetser 1990, inter alia), imperative > conditional in English and various other languages (e.g. *Make a move or I'll shoot*, Quirk at al. 1985: 832), and imperative > concessive conditionals in Japanese. His main focus is on *may*, so it is briefly reviewed here.

Narrog (2012b) labels the concessive use of *may*, as in (53), as its 'textual' use in that it involves more than one clause.

(53) We may have our differences from time to time, but basically we trust another's judgement.

The following paraphrase by Quirk et al. (1985: 224) brings out the performative meaning of (53):

(54) I admit that we have our differences from time to time, but basically we trust another's judgement.

Narrog (2012a: 37) further argues that intersubjective meaning is integrated into and diachronically earlier than concessive *may*: "the protases of concessives often accommodate a proposition and a point of view that is in opposition to the speaker/writer's own assertion in the matrix clause. This proposition may be coming either directly from an interlocutor, or from the speaker/writer him- or herself". If this analysis is correct, Narrog observes, it would not be able to be accommodated within Traugott's model, which takes textual meaning to be subjective, as the history of *may* would then be: 'intersubjective *may* > (textually) subjective *may*'. To capture unidirectionality in semantic change, one would then need to posit 'textual meaning' as more advanced and distinct from (inter)subjective meanings.

With regards to imperative > conditional and imperative > concessive conditional, Narrog note that they are comparable to concessive *may* and "can be viewed as rhetorical dialogues in which a speaker anticipates propositions potentially entertained by the hearer" (2012b: 45–46).

5.6.4 A critique of textualisation

Narrog (2012a) characterises modal > concessive, imperative > conditional, and imperative > concessive as "rhetorical". However, it is questionable why any rhetorical use of language would not have any (inter)subjective meaning component; it is not clear how the speaker could orient themselves to the text without committing themselves at all or rhetorically involving the addressee somehow. In her review of Narrog (2012b), Traugott (2014: 147) notes that Narrog's proposal for the distinct status of textualisation "severely downgrades the role of the speaker in semantic change". The developments of *bì* and *fēi* suggest that it is indeed true. Whether 'more text' (monoclausal *bì* > biclausal *bì*) or 'less text' (biclausal *fēi* > monoclausal *fēi*) is involved, Ch. 4 and this chapter have shown that it can be analysed as semanticisation of invited inferences, which results from interaction between speakers and addressees.

Moreover, attention to the hearer (i.e. intersubjectivity) may also play a role in the development of complex clauses, too. Fortuin & Bogaart (2009) & Kikuta (2018) analyse from a constructional perspective the so-called conditional imperatives (i.e. the resultant structure of the change 'imperative > conditional') in Dutch, Russian and Japanese and characterise them intersubjectively. An English equivalent is (55), which roughly means 'if you drink another can of beer, I'm leaving'.

(55) Drink another can of beer and I'm leaving

Kikuta (2018: 249); see also Culicover & Jackendoff (1997)

Both studies concur that conditional imperatives "[have] a rhetoric function in the interaction between speaker and hearer… [by] using them the speaker asks the addressee to imagine X happening and the consequences thereof" (Fortuin & Boogart 2009: 654).[18]

Going back to the example of concessive *may*, if it is both 'rhetoric' and 'dialogical' like the conditional imperative, it does not seem unreasonable to regard its change as 'intersubjectification'. Narrog argues that concessive *may* is subjective, not intersubjective, thereby a case of counterdirectionality in the standard Traugottian model. However, it is perhaps misguided in that it should be characterised as intersubjective.

In sum, it is questionable whether textualisation, at least in the domain of modality and conditionality, is an adequate proposal about semantic change. It is not well motivated by language use, in which nothing takes place in a vacuum without at least the speaker, and it does not seem to capture phenomena that cannot be interpreted as (inter)subjectification. Therefore, a model of invited inferencing probably does not need a process like textualisation that is decoupled from speakers and addressees.

5.7 Conclusion

The first half of this chapter examines the development of *fēi* from a conditional connective 'unless' to a modal 'must'. It is proposed that it originated from contexts where the apodosis is used rhetorically to reinforce the deontic force or epistemic judgement conveyed in *p*. Such uses of *fēi p, q* carries the same indirect illocutionary force as a modalised main clause such as *fēi p*, thus inviting inferences that *fēi p* means 'must *p*'. This developmental process is characterised as the

[18] Narrog (2012a) focuses on the imperative without considering coordination in detail. It should be noted that coordination plays an important role in this type of conditionals, as the protasis containing only a noun phrase (instead of an imperative) can also have a similar meaning (e.g. "*one more beer and I'm leaving"* Culicover & Jackendoff 1997: 196). A more detailed analysis of the diachrony of this type of conditionals that considers cooridnation therefore may provide insights into its semantic evolution that are different from Narrog's (2012a).

semanticisation of inferences that the speaker invites the addressee to consider. A constructional analysis is then given to visualise the specific processes involved, and the performative bidirectionality prediction is shown to account for the development of *fēi* as well.

The second half of the chapter looks at alternative approaches that might help account for bidirectional changes between modal and conditional constructions. Three of them are discussed, but ultimately rejected: degrammaticalisation, insubordination, and textualisation. One interpretation of degrammaticalisation forces a unidirectional view on the data, when in fact no particular direction of change seems to be the preferred one. Moreover, it reduces the constructions involved to their semantic categories, disregarding not only their natures as multiple source constructions, but also their statuses as constructions. Finally, it is argued that the frequently cited example of degrammaticalisation in Chinese, *děi*, is not 'counterdirectional', but falls out naturally from a constructional view on Chinese modals and connectives.

Insubordination is problematically associated with the notion of irregularity. Even though insubordination could potentially be used only descriptively to refer to a main clause that was previously a subordinate one, Evan's (2007) model of insubordination is rejected as a suitable account of the development from protasis connective to modal in Chinese because the development does not necessarily involve the ellipsis of main clause or the clear distinction between main vs. subordinate clauses that the model suggests.

Textualisation downplays the roles of both the speaker and hearer in semantic change. Even though, like insubordination, it may be used theory-neutrally to describe a specific kind of change that involves the creation of complex clause structure, it is probably secondary to (inter)subjectification within the IITSC, at least with respect to modality and conditionality.

In conclusion, this chapter has demonstrated that the performative bidirectionality prediction, which combines both invited inferencing and insights from diachronic construction grammar, can adequately capture developments

between modality and conditionality. The developments are 'late-stage' in that they arise out of modal and conditional constructions, which are grammatical and procedural in that they index the speaker's assessment of '(non-)factuality' (assumed to define modality here; Ch. 4.2) and contingency between two propositions. By arguing that invited inferencing and a constructional perspective can account for the developments, while alternative proposals about late-stage developments do not necessarily do so, or at least not as satisfactorily, this chapter demonstrates that late-stage developments are not qualitatively different from early-stage developments. 'Secondary grammaticalisation', then, has no place in a constructional framework, because it does not make any prediction about change that cannot be subsumed under more specific processes, such as subjectification (see also Ch. 3). Nor can it account for bidirectionality, which requires a holistic view on the constructicon of Chinese, at various levels of schematicity, as pointed out in Ch. 4.5.3.

Chapter 6

From quantifier to classifier:

Realignment, reinforcement and/or

grammaticalisation?

6.1 Introduction[1]

While the previous two chapters analyse cases where constructionalisation and grammaticalisation intersect (despite bidirectionality), this chapter deals with a case where they do not meet. The source of data is *xiē* 'some; an indefinite quantity' in Chinese.[2] Similar to Ch. 5, this chapter first approaches *xiē* using diachronic construction grammar, and then considers it from an alternative, grammaticalisation perspective. The overall argument is also similar: a constructional model captures the development more precisely and does not force a unidirectional view on the data or posit any process specific to late stage change.

Using a construction-based approach to word classes (e.g. Croft 2001), it is proposed that *xiē* was originally a quantifier, because it could fill in the quantifier schema, but became a classifier later. This recategorisation, which has created classifier micro-constructions filled by *xiē*, is modelled as 'realignment', or 'change in inheritance' in diachronic construction grammar. Crucial to this realignment are the associations between *xiē* and the classifier slot in parts of the classifier schema.

This realignment allowed *xiē* into the *yi* 'one' subschema, [*yi* CL NP], creating [*yi xiē* NP], semantically equivalent to the quantifier construction [*xiē* NP] (see Iljic

[1] Acknowledgement: the main body of this chapter, except for §6.5.3, contains large portions of Kuo (accepted b), which been accepted for publication in *Constructions and Frames*. It is under copyright, and the publisher should be contacted for permission to re-use the material in any form.

[2] Classifier constructions vary significantly from one Sinitic variety to another (e.g. Chappell 2015; Jian 2015). This chapter concerns only Mandarin Chinese; see Ch. 1.

1994 for the semantic equivalence). This is also a case of reinforcement, in which additional form does not lead to semantic change. *Yi* in [*yi xiē* NP] therefore parallels established cases of grammaticalisation known as Jespersen's Cycle, such as the evolution of *pas* 'step' in French into a negative marker (e.g. Lehmann 1995). However, this chapter argues against a grammaticalisation account of *yi*, *xiē* or *yi xiē*, and by the same token, 'secondary grammaticalisation'. The addition of *yi* to *xiē* follows from *xiē*'s realignment to the *yi* subschema [*yi* CL NP], which accounts for [*yi xiē* NP]'s properties. There is thus no need to posit any grammaticalisation process specific to *yi*, *xiē* or *yi xiē*, when an analogical template such as the *yi* subschema had already been grammaticalised and was available in the network of constructions involved in the realignment. Building on this analysis, a provisional typology of reinforcement is proposed, and it is argued that 'cline-like', or 'linear' representations commonly found in many grammaticalisation studies do not do justice to the multidimensional nature of language change.

Moreover, it will be shown that *xiē* has developed a more lexical/contentful meaning 'type; group', which therefore exhibits counterdirectionality and can be analysed as a case of degrammaticalisation. Again, this change will be shown to follow from the interaction between its original semantics and that of classifier schema. This chapter therefore also shows that the constructionalisation framework can model in a principled manner a wider range of phenomena that lies outside the scope of unidirectionality-based grammaticalisation (e.g. bidirectionality and counterdirectionality).

The chapter is structured as follows. §6.2 introduces classifiers in Chinese, as well as the specifics of *xiē*. §6.3 outlines classifier constructions relevant to *xiē*. §6.4 describes *xiē*'s diachrony. §6.5 presents the realignment analysis. §6.6 interprets *xiē* in terms of reinforcement and grammaticalisation, considers a provisional typology of reinforcement and discusses theoretical implications. §6.7 concludes.

6.2 Classifiers and the problems of *xiē*

§6.2.1 presents a brief introduction to classifiers in Chinese. §6.2.2 provides *xiē*'s synchronic description. §6.2.3 discusses previous analyses.

6.2.1 Classifiers in Chinese

There is an abundance of classifier taxonomies in the literature (e.g. Chao 1968; Allan 1977; Aikhenvald 2000; Huang 2013). No comprehensive review is attempted here; only Ahrens and Huang's (2016) taxonomy of classifiers in Chinese is introduced.

Ahrens & Huang (2016: 169) state that the primary function of classifiers is to "individuate; that is, to identify the units for enumeration or reference". Alternatively, the primary function has been described as 'unitisation' (Croft 2001): classifiers are used to create countable units in Chinese.[3] Classifiers typically occur in the constructional schema [NUM CL NP] in which the CL ('classifier') slot constitutes a unit of counting and the NUM ('numeral') slot indicates how many units of entity denoted by the NP are counted. For example, *yi zhī jī* (lit. one CL

[3] According to Croft (2001: Ch. 3.2.3), there are in general two opposing views on the semantics of nouns in classifier languages like Chinese: the 'relative' and the 'universalist' views, which may be said to be represented by the terms 'individuation' and 'unitisation' (as intended by Croft 2001). The 'relativist' view assumes that all nouns in classifier languages like Chinese are construed by speakers as mass nouns, therefore counting any noun requires a classifier to individuate it. This is the implicit assumption that lies behind the term 'individuation'. The 'universalist' view, however, assumes that the count and mass distinction is also represented in the mind of speakers of classifier languages. Under this 'universalist' view, the primary function of classifiers is not 'individuation' (whether a noun is individuated is inherent to its semantics), but 'unitisation'; classifiers form units of counting, just like how mass nouns require measure words to be counted (*a glass of water*; for a comparable view, see Taylor 2002: Ch. 19.4). 'Individuation' and 'unitisation' sometimes are used interchangeably and their definitions may entail each other, too. Moreover, neither term necessarily signals one's commitment to either the 'relativist' or 'universalist' view (Ahrens & Huang 2016, for example, implies that Chinese has count and mass nouns, even though they opt for 'individuation'). The main analysis presented here does not hinge on either view. For this reason, 'individuation' will be used instead of 'unitisation', partly also to achieve consistency with Ahrens & Huang's (2016) terminology, whose Chinese-specific taxonomy of classifiers is used as a point of reference here.

chicken) counts 'one chicken', while *liǎng zhī jī* (lit. two CL chicken) counts 'two chickens' (see Figure 6.1. for a representation of the form and meaning').[4]

Two major functional subtypes of classifier are distinguished: sortal classifiers and measure words (Ahrens & Huang 2016). Comparable labels are used in, e.g. Croft (1994), Cheng & Sybesma (1999) and Aikhenvald (2000).

Sortal classifiers are unique to so-called classifier languages such as Chinese. They mark conventionalised noun classes and pick out inherent properties of the noun, such as animacy, shape and internal composition (Croft 1994; Aikhenvald 2000). For example, *zhī* is a sortal classifier that classifies animals. To count any number of *jī* 'chicken', it is obligatory to use it, another classifier for animals or the default classifier, *ge*. Most sortal classifiers have strict selectional restrictions in that the nouns they select must possess the relevant properties, but the most general sortal classifier, *ge*, being the default classifier, can collocate with virtually any noun (see also Erbaugh 1986; Biq 2004).

Measure words are similar to quantifying expressions like *pile*, *cup* and *group* in English, as they create measuring units of entity. For example, the measure word *duī* creates a unit equivalent to 'pile': *yi/liǎng duī shū* (lit. one/two pile book) means 'one/two pile(s) of books'. Measure words typically do not have selectional restrictions as stringent as sortal classifiers, as the use of measure words is "often determined by the temporary state of an object (its quantity, or the arrangement it occurs in)" (Aikhenvald 2000: 115).

Ahrens and Huang (2016) also identify functional subtypes of sortal classifier and measure word. Subtypes of sortal classifiers do not concern *xiē*, so they are not discussed here. Ahrens and Huang's subtypes of measure word are: container measure word (e.g. *bēi* 'cup'), standard measure word (e.g. *nián* 'year') and approximate measure word (e.g. *diǎn* 'dot; bit', *piàn* 'leaf; expanse'). The first two subtypes are self-evident, as they correspond to their English counterparts and are perhaps highly common in any language and culture with standardised units of

[4] *Yi*'s tonal realisation is context-dependent. As phonology is not relevant, *yi*'s tonal value will not be indicated.

measurement. Approximate measure words (AMWs), however, may be more specific to Chinese. Ahrens and Huang (2016: 191) states that AMWs "refer to an approximate quantity" and "a characteristic of [AMWs] is that they cannot be preceded by numerals other than [yi] 'one'". For example, *diǎn* is an AMW that counts a small approximate quantity. *Yi diǎn yánsè* (lit. one dot colour) does not count precisely 'one dot of colour', but means 'a bit of colour' (see also Chen 2017).

In constructional approaches that define items by the constructions they occur in (e.g. Croft 2001), AMWs are classifiers that are instantiated in the CL slot in the AMW construction [*yi* CL NP]$_{AMW}$ in which *yi* does not mean '(cardinal numeral) one', but signals an approximate quantity. Typically, classifiers in the CL slot in [*yi* CL NP]$_{AMW}$ can also fill in the CL slot in a 'regular', non-AMW classifier construction, including one in which *yi* 'one' is a 'cardinal numeral' that denotes 'one' and counts one unit (this construction will be labelled as [*yi* CL NP]$_{CARDINAL}$). That is, AMWs can also function as non-AMW classifiers, when they occur in non-AMW classifier constructions such as [*yi* CL NP]$_{CARDINAL}$. For example, AMWs such as *piàn* and *diǎn* are also sortal classifiers. Ahrens & Huang (2016: 192) remark that *piàn* as an AMW can "describe light or colour that is evenly distributed" or "a sound in great quantity", citing examples such as *yi piàn hēi'àn* (lit. one *pian* black) "total darkness" and *yi piàn huānhūshēng* (lit. one *pian* acclamation) "a lot of acclamation". But as a sortal classifier, *piàn* is "used to classify objects that have the attributes of being flat and thin", exemplifying it with *yi piàn cháyè* (lit. one *piàn* tealeaf) "one tealeaf" (Ahrens & Huang 2016: 179). On the other hand, *diǎn* as an AMW hardly has any selectional restriction: it denotes a small quantity of virtually anything, comparable to *a bit* in English. Its possible collocates include *qián* 'money', *niúnǎi* 'milk' and *shāng* 'injury' (Ahrens & Huang 2016: 194). *Diǎn* as a sortal classifier "classifies nouns that have the attribute of being viewed as a tiny drop or a spot"; for example, *jǐ diǎn hēi bān* (lit. several *diǎn* black dot) "a few black dots" (Ahrens & Huang 2016: 184).

In addition to [*yi* CL NP]$_{CARDINAL}$ and [*yi* CL NP]$_{AMW}$, another relevant classifier construction is the 'bare' classifier construction, [CL NP]$_{BARE}$, whose CL slot, typically,

can be filled by any classifier. The bare classifier construction is named for the fact that it is numeral-less (Cheng & Sybesma 1999; Li & Bisang 2012; Ahrens & Huang 2016). The bare classifier construction counts one quantity of NP whose referential status is indefinite by default. Its distribution is restricted, typically only occurring immediately after verbs (including aspectual markers) or certain determiners (Ahrens & Huang 2016; Shi 2016). By contrast, non-bare constructions have a wider range of distribution that includes pre-verbal contexts. Table 6.1 sums up the constructions discussed so far. Two more senses of the form [*yi* CL NP] will be introduced in §6.5.

Construction	**Form**	**Meaning**	**Distribution**
Cardinal *yi* 'one' construction	[*yi* CL NP]	'one quantity'	preverbal, postverbal or after determiners.
AMW construction		'an approximate quantity'	
Bare classifier construction	[CL NP]	'a quantity'	postverbal or after determiners.

Table 6.1 Properties of the *yi*, AMW and bare classifier constructions

6.2.2 Synchronic description of *xiē*

Xiē is described as a classifier in most grammars (Chao 1968; Li & Thompson 1981; Wiedenhof 2015). It precedes an NP, indicates 'some; an indefinite quantity', and is by default indefinite.[5]

As many point out, even though most classifiers can freely take any numeral, *xiē* seems to only take *yi* 'one' and *yi* in *yi xiē* seems semantically empty (e.g. Chao

[5] Note that *xiē*, like *some* in English, can contrast with the meaning of 'all'. However, unlike *some*, which is stressed when contrasting with 'all' (Huddleston & Pullum 2002), the phonology of *xiē* remains the same whether it contrasts with the meaning of 'all' or not . Moreover, *some* has an 'indefinite' but 'specific' meaning when used with a singular count noun (Haspelmath 2001:47), as in some guy. *Xiē* by itself does not have this meaning.

1968; Li & Thompson 1981; Iljic 1994; Yang 2005). For example, *yi xiē shuǐ* 'some water' literally means *one some water* and is grammatical, but **liǎng xiē shuǐ* (lit. two some water) is not, at least in prescriptive grammar. This property of *xiē* allows it to be categorised as an AMW, i.e. it can occur in the AMW construction, and indeed Ahrens & Huang (2016) identify it as one. However, typically *xiē* only occurs in either the AMW or the bare construction, but not a cardinal numeral *yi* 'one' construction (compare *piàn* and *diǎn* in §6.2.1).

The semantics of the AMW *xiē* micro-construction [*yi xiē* NP]$_{AMW}$ is identical to that of the bare *xiē* micro-construction [*xiē* NP]$_{BARE}$. The difference between them has received so little attention that some assume or imply that they are equivalent in every respect (e.g. Chao 1968; Li & Thompson 1981; Iljic 1994; Wiedenhof 2015). However, they have different distributional preferences, which follow from the constructions that they appear in. [*xiē* NP]$_{BARE}$ typically does not occur preverbally, while [*yi xiē* NP]$_{AMW}$ has no such constraint because it is a non-bare construction (see Table 6.1).[6]

Neither [*yi xiē* NP]$_{AMW}$ nor [*xiē* NP]$_{BARE}$ imposes any selectional restriction on NP and the head noun can be count or mass (Huang 2013: 183). This lack of selectional restriction qualifies *xiē* as a measure word, not a sortal classifier. Moreover, what *xiē* quantifies may be vague with respect to a count or mass reading. (1) therefore may have a count reading 'chickens' or a mass reading 'chicken (meat)'. This is also related to the fact that Chinese usually does not express grammatical number. A similar observation has been made for AMW *diǎn* (Zhang 2013: Ch. 3; Chen 2017).

[6] Instances of *yi xiē* and *xiē* that immediately preceded common nouns were queried for in the Sinica Corpus of PDC. This ensured only instances meaning 'some' were extracted since (*yi*) *xiē* has developed other meanings (Kuo 2018). Out of 1423 such instances of *xiē*, only 6% were preverbal, while out of 2400 instances of *yi xiē*, 39% were preverbal.

(1) (一)些鷄

(yi) xiē jī

one some chicken

'some chicken (meat); chickens.'

Xiē in the AMW and bare constructions thus constitutes one general counting unit, regardless of the unit's internal structure, which can be homogenous (e.g. every piece of 'chicken meat' is the same as 'chicken meat') or heterogeneous (e.g. every 'chicken' is not the same as 'chickens'). In Iljic's (1994) words, *xiē* can group several heterogeneous objects into a coherent, homogenous "whole", despite their potential heterogeneity, whose referential status is indefinite.[7]

As far as forming an indefinite unit of counting goes, *xiē* is not much different than any other measure word in a construction such as [*yi* CL NP]$_{AMW}$ or [CL NP]$_{BARE}$. For example, (2) shows that, similar to *xiē* in (1), *duī* 'pile' constitutes a unit that counts substance (*tǔ* 'dirt') or a collection of objects (*shū* 'book').

(2) (一)堆土/書

(yi) duī tǔ/shū

one pile dirt/book

'one/a pile of dirt/books.'

However, there are two idiosyncrasies associated with *xiē* as a classifier. First, it can precede the sortal classifier *ge* (see §6.2.1) without any change in the semantics of *xiē*, even though generally two different classifiers cannot co-occur in a phrase (Yang 2005; Zhang 2013). Iljic (1994: 101) cites the following example from Zhu (1982: 49; glossing mine). Note that *xiē* in (3) can be a bare classifier or an AMW.

[7] AWM *xiē* micro-construction therefore resembles binominal constructions in English such as *a bunch of* NP and *a lot of* NP (Traugott 2008; Brems 2011) in the sense that despite the form of *yi* 'one' or *a*, the head noun may actually be plural (i.e. *a lot of dogs*).

(3) 買了(一)些個沒用的東西

mǎi	le	(yi)	xiē	ge	méiyòngde	dōngxī
buy	PFV	one	some	CL	useless	thing

'(I) have bought some useless things.'

Second, some novel usages of *xiē* have escaped most linguists' observations (e.g. Chao 1968; Li & Thompson 1981; Iljic 1994; Yang 2005; Zhang 2013; Huang 2013; Wiedenhof 2015; Ahrens & Huang 2016). Even though *xiē* typically only takes *yi*, it ocassionally takes numerals such as *bàn* 'half' and *liǎng* 'two'. These novel usages are rare. Neither occurs in any of the Sinica Corpora. In the CCL Corpus, *bàn xiē* occurs three times in PDC and nine times in Pre-PDC, while *liǎng xiē* does not at all. *Bàn xiē*, (lit. 'half some') means '(a) few or little; less than some'. For example:

(4) 若有半些差池

ruò	yǒu	bàn	xiē	chāchí
if	there.is	half	some	blunder

'if there is (even) a bit of blunder…' *Rúlín Wàishǐ* (1750)

Liǎng xiē (lit. 'two some') means 'two types or groups'. For example, (5) is a passage by *Lǔ Xùn*, a leading figure in Modern Chinese literature.

(5) 中國的文人們有兩些,一些…別的一些文人們

zhōngguó	de	wénrénmen	yǒu	**liǎng**	**xiē**,	**yi**	**xiē**…	
China	POS	scholar.PL	there.is	two	type	one	type	
biéde	**yi**	**xiē**	wénrénmen					
other	one	type	scholar.PL					

'There are two types of Chinese scholar, one type… the other type of scholar…' *Hǎiyàn Monthly* (Jan. 1936)

In (5), *yi xiē* and *bié de yi xiē* (lit. other *yi xiē* scholar) suggest that the meaning of *xiē* is similar to a type noun (e.g. 'kind'; 'sort'; 'type'), because they specify the two types denoted by *liǎng xiē*. Similar instances of *liǎng xiē* are also found on the web.

(6) 最近在團體遇到兩些人…有一些人…另一些人

zuìjìn zài tuántǐ yùdào **liǎng** **xiē** rén… yǒu **yi** **xiē**
recently in group meet two type person there.is one type
rén… lìng **yi** **xiē** rén
person other one type person
'Recently I met two types of people in group meetings… there's one type of people… the other type of people…'

(http://happyconan3.blogspot.com/2011/03/blog-post_20.html) (Accessed 20-02-2020.)

(7) 我們的生命中有兩些人…一些人…另一些人…

women de shēngmìng zhòng yǒu **liǎng xiē** rén…
we POS life inside there.is two some person
yi **xiē** rén… lìng **yi** **xiē** rén
one some person other one type person
'In our lives there are two types of people…one type of people… the other type of people…'

(http://blog.sina.com.cn/s/blog_701373400100l1kw.html) (Accessed 20-02-2020)

The novel uses of *xiē* as a type noun are particularly interesting. The original function of *xiē* comparable to 'some', is arguably more procedural and schematic than that of a type noun. It can quantify anything in an ontology of entities and is vague with respect to the mass vs. count distinction, while a type noun more specifically identifies a class or collection of entities and is by itself countable, unlike the meaning of 'some' (see *liǎng xiē* 'two types'… *biéde*/*lìng yi xiē* 'the other type' in 5–7). Moreover, even though *xiē* as a type noun is very rare, searches on the web only yielded instances of it quantifying people (as in 5–7). It then seems that *xiē* as a

type noun may be fairly contentful: it specifically quantifies 'types' or 'groups' of people (see §6.5.4 for more details on countable/uncountable *xiē* micro-constructions).

In sum, even though described by most as a classifier, *xiē* has idiosyncrasies that defy this simple description.

6.2.3 Previous analyses of *xiē*

To address the idiosyncratic collocation of (*yi*) *xiē* with *ge*, some have analysed (*yi*) *xiē* as a quantifier (Iljic 1994; Yang 2005; Zhang 2013). This kind of non-constructionalist analysis typically overlooks the difference between *xiē* and *yi xiē* and assumes *yi xiē* to be equivalent to *xiē*. What underlies this analysis is the formal and functional similarities that quantifiers and (*yi*) *xiē* share: they all quantify and precede the quantified noun. Quantifiers (e.g. *měi* 'each', *rènhé* 'any' and *suǒyǒu* 'all'; for the purpose of this chapter, quantifiers do not include numerals) differ from most classifier in that they do not necessarily 'individuate'. Numeral classifier constructions (i.e. [NUM CL NP]) also typically 'count' precisely, whereas quantifier constructions do not necessarily do so (Ahrens & Huang 2016; Chen 2017: 91). These differences are reflected by the fact that quantifiers can take classifiers, if individuation is intended, and even numerals, if precise counting is intended. For example, (8) below counts (every) *one* student, but *yi* 'one' can be replaced by any numeral such as *liǎng* 'two' to mean 'every two students'.

In constructional terms, the quantifier schema has two optional slots: NUM and CL, but the occurrence of NUM depends on CL since counting requires classifiers. The following variants are possible: [QNT (for quantifier) NP], [QNT CL NP] and [QNT NUM CL NP]. For example, (8) can instantiate [QNT CL NP] or [QNT NUM CL NP] (see also Shi 2016: Ch. 8.3).

(8) 每(一)個同學

měi (*yi*) ge tóngxué

every one CL student

'every student.' based on Shi (2016: 210)

By the same token, AMW *xiē*, bare *xiē* and (*yi*) *xiē ge* in (3) can be analysed as [[(*yi*) *xiē*]$_{QNT}$ (*ge*$_{CL}$) NP].

In sum, non-constructionalist studies posit *xiē* to be a quantifier on the basis of two facts: first, *yi* in (*yi*) *xiē* typically cannot be replaced by any numeral, which does not qualify *xiē* as a 'true' classifier; second, (*yi*) *xiē* can precede *ge*.

The problem with a non-constructional approach to the category of *xiē* is that, as quantifiers typically do not take any numeral without any classifier, categorising *xiē* exclusively as a quantifier cannot explain its (admittedly rare) collocation with *bàn* 'half' or *liǎng* 'two', or the meaning shift from 'some' to 'type'. Postulating *xiē* to be exclusively a classifier may explain its collocation with *bàn* 'half' or *liǎng* 'two' more easily, as classifiers typically can take numerals. But it is not satisfactory, either, as it cannot explain why *xiē* collocates with *ge*, behaving like a quantifier, or why *xiē* typically does not appear in a regular (i.e. non-AMW and non-bare) classifier construction.

Assuming 'construction' as our theoretical primitive that defines word classes (Croft 2001; Diessel 2019), we may say that the category of *xiē* depends on the construction that it occurs in. The question is then how *xiē* has come to fill in two different slots associated with two word classes: the CL and QNT slots. To provide an answer, §6.3 first represents constructions that are relevant to *xiē*.

6.3 Constructions relevant to *xiē*

Various AMW micro-constructions and an AMW subschema can be proposed under the classifier schema [NUM CL NP]; both the micro-constructions and the subschema are not compositional because their NUM slot is a fixed *yi* 'one' which does not mean 'one', whereas a typical classifier construction has a schematic NUM

that means 'one' if filled by *yi* (see Table 6.1 above). Under the AMW subschema, an AMW *xiē* micro-construction can also be posited. Figure 6.1 is a partial representation of the position of *xiē* in the classifier taxonomy in PDC, with only relevant properties of syntax (syn), semantics (sem) and phonology (phon) specified. The subscripts indicate co-referentiality: NP_i denotes $entity_i$ and NUM_j denotes the $number_j$ of unit(s) counted.

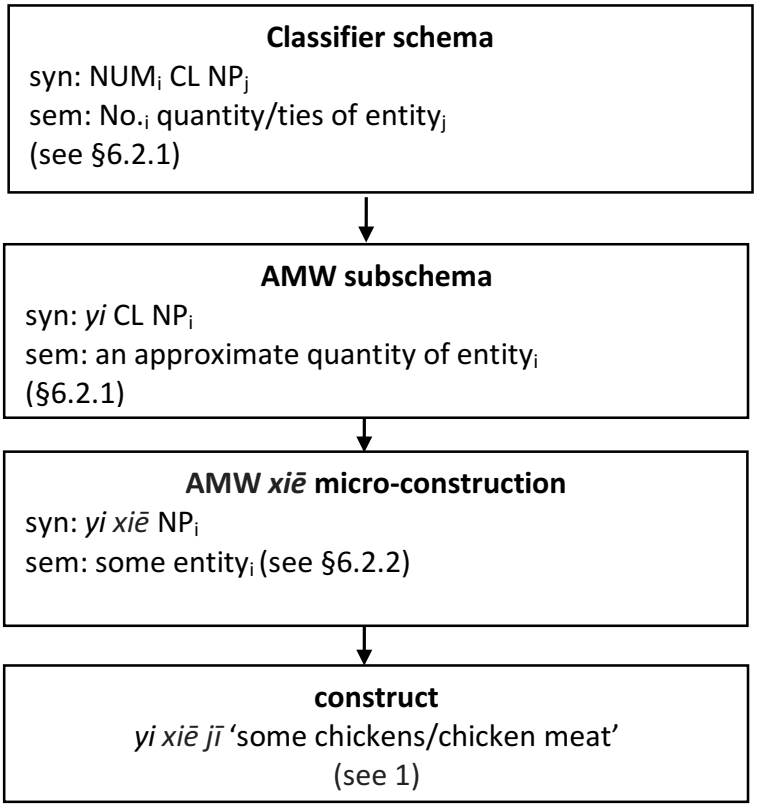

Figure 6.1 The position of *xiē* in the classifier taxonomy

To Figure 6.1, two more constructions can be added: the bare classifier subschema, which only occurs after verbs or determiners, and its daughter, the bare *xiē* micro-construction (novel usages are omitted here until §6.5.4). What is not represented is the horizontal link between the bare classifier subschema and the AMW subschema; so is the one between the AMW *xiē* and bare *xiē* micro-constructions.

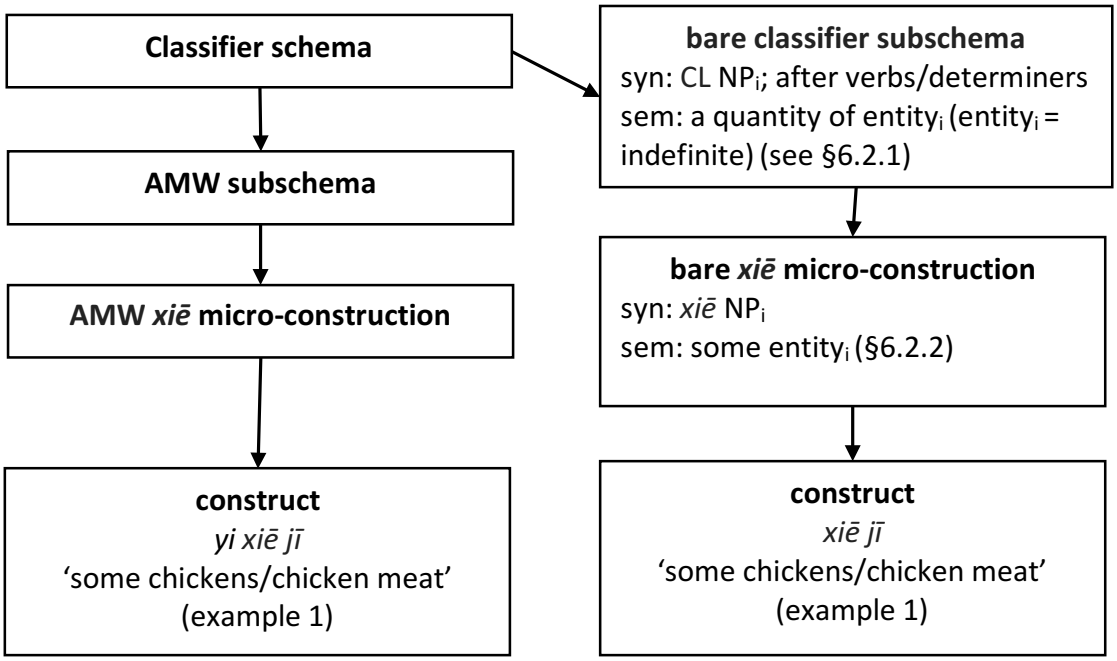

Figure 6.2 Constructional taxonomy of *xiē*, with the bare classifier subschema

Xiē can also appear in the QNT slot in the quantifier schema, which may have a CL slot (§6.2.3). Both AMW *yi xiē* and bare *xiē* can be categorised as quantifiers, as they can precede *ge* (see example 3). Figure 6.3 represents this possibility.

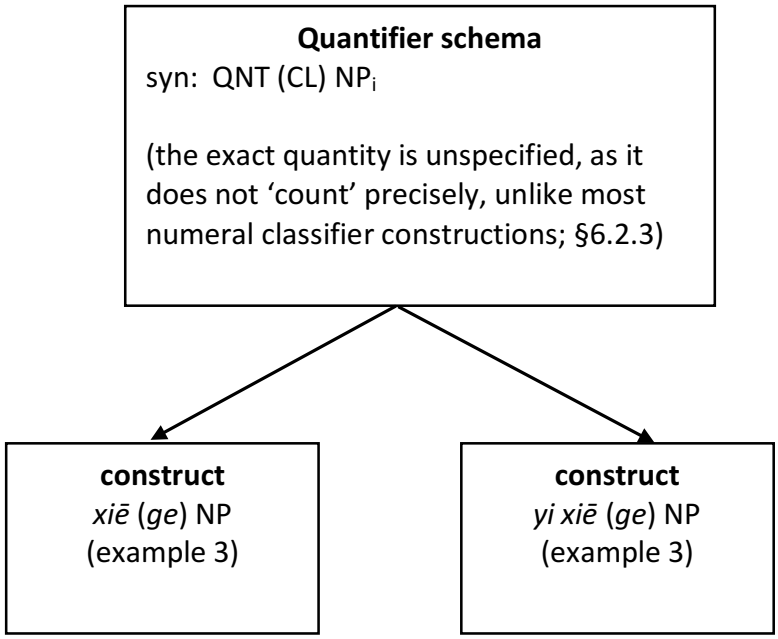

Figure 6.3 Quantifier categorisations of (*yi*) *xiē*

To explain how *xiē* has come to fill in the QNT and CL slots, §6.4 delves into the history of *xiē* to provide the background for the analysis presented in §6.5.

6.4 The diachrony of *xiē*

§6.4.1 discusses the diachrony of *xiē*, while §6.4.2 interprets its category status from a constructional perspective, to set the scene for the realignment analysis in §6.5. Most of the data in this section were drawn from the CCL Corpus, unless otherwise stated. Authors' dates of birth and death are identified, if no composition/publication date of the text is available. This is partly because texts that show relevant changes are modern and easier to date (as compared in Classical Chinese in Ch. 4). §6.4.3 summarises.

6.4.1 A brief history of *xiē*

The origin of *xiē* is hypothesised to have been in the disyllabic compound *xiēxiǎo* 'small', attested in a 3rd century verse (not included in the CCL Corpus, but the Chinese Text Project; see Ch. 1.4.3).

(9) 身體些小肌肉瘠瘦

shēntǐ xiēxiǎo jīròu jíshòu

body small flesh thin

‘(My) body is small and flesh thin.’ *Cáo Zhí* (192–232)

It is highly likely that subsequent instances of *xiē* that mean ‘some’ developed from (9). Support for this hypothesis comes from Jurafsky (1996), who suggests that the sense of ‘small; low on the scale of size’ may give rise to various other senses. In the case of quantification, ‘low on the scale of size’ can be used metaphorically as ‘low on the scale of quantity’. One such example in English is (*a*) *little* used as a quantifier (Jurafsky 1996: Footnote 3; see also Jurafsky 1996: 554 – 560 for futher details and analyses). *Xiēxiǎo* in later texts is also used for quantification, as in (10). This suggests a parallel between *xiēxiǎo* ‘small’ > *xiēxiǎo* ‘some’ and *xiēxiǎo* ‘small’ > *xiē* ‘some’.

(10) 胭脂也不添些小

yānzhī yě bù tiān xiēxiǎo

rouge even not add some

‘Rouge, not even some was added.’ *áo Pāng* (c. 1061–1124)

Earliest instances of *xiē* that are used for quantification are found in bound forms, including *xiēzi*, *xiēxiē* and *xiēr.* Both *–zi* and *–r* are diminutive suffixes, originally meaning ‘child’, while *xiēxiē* is a reduplicated form of *xiē* (glossed as ‘RDP, for reduplication). Examples include:

(11) 花貌些子時光

huā mào xiēzǐ shíguāng

flower appearance some.DIM time

‘some time that is as beautiful as flowers.’ *Lǐ Bái* (701–762)

(12) 縱有些些理

zǒng	yǒu	xiēxiē	lǐ
although	have	some.RDP	reason

'Although you may have some reasons…' *Wáng Fánzhì* (?–c. 670)

(13) 沉檀輕注些兒個

chéntán	qīng	zhù	xiēr	ge
rouge	lightly	dab	some.DIM	CL

'Rouge, dab some (of that) (on the face).' *Lǐ Yù* (937–978)

Note that (13) is similar to (3) in that *xiēr* in (13) and (*yi*) *xiē* in (3) both precede the classifier *ge*.

As observed by many sinologists, reduplication in Sinitic languages usually expresses "the meaning of tentativeness, short duration or small quantity, the last two of which are highly compatible with the diminutive" (Cao 2006: 6; translation mine). Jurafsky (1996: 570) also remarks that "reduplication is also a common mechanism for coding the diminutive", citing various sources to support his claim. Therefore, *xiēxiē* can also be seen as semantically equivalent to *xiēzi* and *xiēr* in that the reduplicant and the diminutive suffix both express diminutive semantics.

From the 11th century onward, *xiē* can be found as an independent form:

(14) 有些針綫

yǒu	xiē	zhēn	xiàn
there.is	some	needle	thread

'There are some needles and threads.' *Ōuyáng Xiū* (1007–1072)

(15) 無些酒

wú	xiē	jiǔ
not	some	wine

'there is not any wine.' *Zhōu Bāngyàn* (1056–1121)

Around the same time *xiē* also occurs with *yi* ‘one’ or even both *yi* and *–r*. For example,

(16) 一些兒事

yi xiēr shì

one some.DIM matter

‘some matter(s).’ *Zhōu Bāngyàn* (1056–1121)

(17) 一些珠露

yi xiē zhūlù

one some dewdrop

‘some dewdrops.’ *Chén Nán* (? –1213)

Yi xiēzi, *yi xiēxiē* are also attested from later periods.

(18) 一些窒礙

yi xiē zhiài

one some.DIM hindrance

‘some hindrance.’ *Zhūzi Yǔlèi* (1270)

(19) 一些些馬脚

yī xiēxiē mǎjiǎo

one some.RDP slipup

‘some mistake(s).’ *Yùshì Míngyán* (1620)

The numeral *yi* ‘one’ in (16)–(19) allows these *xiē* to be categorised as a classifier. Previously, in (11) – (15), *xiē* and its variants are quantifiers because they take no numeral at the time and may precede the classifier *ge*. A peculiarity is *yi xiē ge* in (20), as well as (3): *yi* suggests a classifier categorisation, while *ge* a quantifier one. However, it is marginal, occurring three times in Pre-PDC.

(20) 一些個尺頭

yi xiē ge chǐtou

one some CL fabric

'some fabric(s).' *Xiánǔ Qíyuán* (early 19th c.)

It is difficult to discern any significant functional difference between *xiē* and its variants, except that they may be stylistically, dialectally and/or pragmatically different. For example *–r* is typically found in Northern Chinese (Chao 1968) and diminutive markers such as reduplication, *–zi* and *–r* emphasise that the quantity is not great.[8] Henceforth, it is assumed that *xiē* in each of the variants is the same kind of *xiē*, with the same function of quantification (i.e. it means 'some'), while any subtle functional difference is attributed to the individual constructions *xiē* occurs in (i.e. the reduplication, *–zi*, *–r*, and *yi* constructions). This assumption leads to a conclusion that the function of *xiē* has been fairly stable diachronically.

However, there is one major distributional change. Synchronically, *xiē* without *yi* typically does not occur preverbally, just like other bare classifiers (see §6.2.2), but it has not always been so restricted. This is exemplified by the sequence *yīn* (*yi*) *xiē*. *Yīn* 'because' is preverbal (Li & Thompson 1981: Ch. 23), so when (*yi*) *xiē* follows *yīn* immediately, it is preverbal, too. (21) shows that ***xiē*** can occur after *yīn* in Pre-PDC.

[8] I am not aware of any study discussing their differences. AMW *diǎn* has variants similar to those of *xiē* (e.g. *yi diǎn* and *yi diǎnr*). Chen (2017) remarks that the diminutively marked *diǎn* variants emphasise its small quantity and mentions no additional functional difference. Similarly, Biq (2004) observes that *yi ge* and *ge* are identical in meaning.

(21) 後來因些閑言語上不曾踏上他門

hòulái yīn xiē xián yányǔ shàng bùcéng tà shàng
later because some idle language rise never step on
tā mén
3SG door
'Later, because some gossip was spreading, I never visited her again.'

Xiāo Déxiáng (?–1331)

However, because it is preverbal, *xiē* in (21) would be phrased as *yi xiē* in PDC. The corpora confirm this: neither contains any PDC instance of *yīn xiē*, while there are 93 instances of *yīn yi xiē*.[9]

6.4.2 A diachronic constructional interpretation of the categories of *xiē*

Xiē was originally a quantifier that occurred in various quantifier constructions (*xiēxiē, xiēzi,* and *xiēr* (*ge*); 11–15), but it was not a classifier because it could not appear in any classifier construction [NUM CL NP]. The quantifier origin of *xiē* partially explains why it can precede *ge*: a quantifier and a classifier can co-occur. Figure 6.4 represents a taxonomy, where XIĒ represents an abstraction over the variants and 'cxn' stands for 'construction'. To simplify the representation, Figure 6.4 omits *ge* at the micro-construction level and does not show that *xiēxiē*, *xiēzi* and *xiēr* inherit from the reduplication, *–zi* and *–r* schemas respectively.

[9] The CCL Corpus contains 13 instances of *yīn xiē* 'therefore' in which the character for *xiē*, 些, is used to represent a different morpheme *cǐ*, typically represented by a similar-looking character, 此.

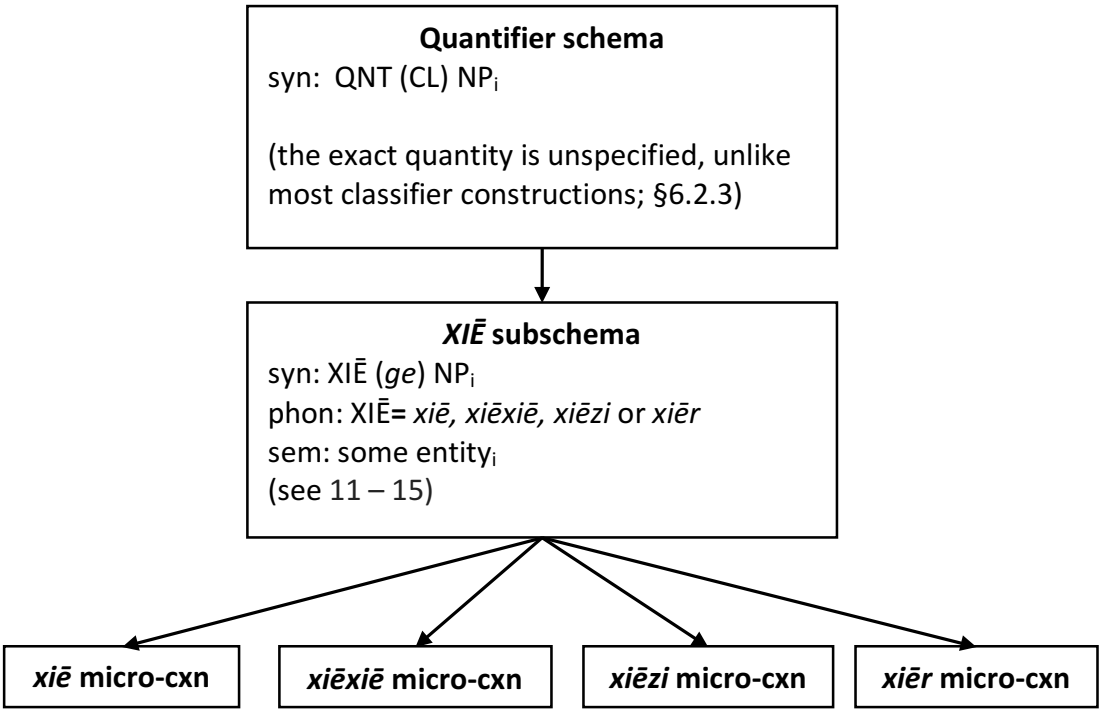

Figure 6.4 Partial taxonomy of quantifier XIĒ

XIĒ can be categorised as a classifier, after appearing in the *yi* construction [*yi* CL NP] (see 16–19), *yi* being the most prototypical numeral in [NUM CL NP] that defines classifier-hood (see also Biq 2004: 1663). The appearances of XIĒ in [*yi* CL NP] suggest that numeral-less XIĒ can also be categorised as instances of [CL NP]$_{BARE}$, because any classifier can fill in the CL slot in [CL NP]$_{BARE}$ (see §6.2.1). However, a classifier categorisation does not render a quantifier categorisation impossible; a numeral-less XIĒ can be interpreted as either a quantifier or a bare classifier, which entails no functional difference (see §6.2.3). Therefore, [*xiē* NP] is characterise by vagueness ("where a linguistic analysis is in some relevant respect underdetermined… but no further information is needed for interpretation"; Denison 2017: 293). Figure 6.5 visualises the categorical vagueness of [*xiē* NP] (other variants are omitted for simplicity).

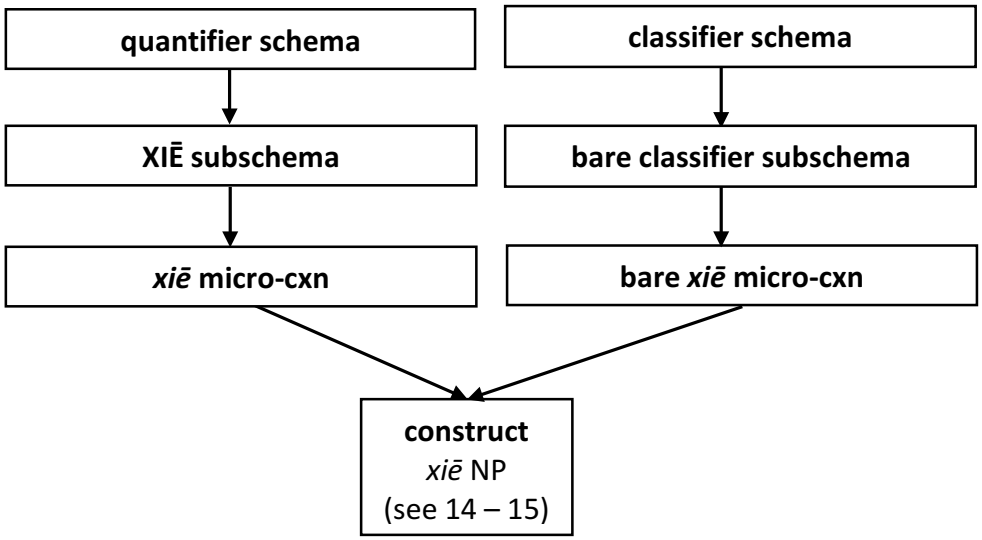

Figure 6.5 Vaguess of [*xiē* NP]

Finally, *yi xiē ge* is a hybrid in that neither a classifier nor quantifier categorisation satisfactorily accounts for its form. A classifier categorisation, i.e. $[[yi]_{NUM}\ [xiē\ ge]_{CL}]$, privileges the association between *yi* and NUM, but treats *xiē* and *ge* as one classifier (as no two different classifiers co-occur; see §6.2.2). A quantifier categorisation, $[[yi\ xiē]_{QNT}\ [ge]_{CL}]$, foregrounds the link between *ge* and CL, yet overlooks *yi* as a numeral. *Yi xiē ge* is therefore also a 'blend' (De Smet 2013); properties from two different constructions are combined into one. In Ch. 5, we saw 'modal-conditional' blends that fuse the word order of conditional protases, the semantics of modals and the monoclausal syntax of modals (Figure 5.4). In this case, we are dealing with a 'quantifier-classifier' blend that fuses the syntaxes of quantifiers and classifiers. This is visualised below (however, due to its low frequency, *yi xiē ge* may not have entrenched as a construction; see §6.4.1 and §6.5.3).

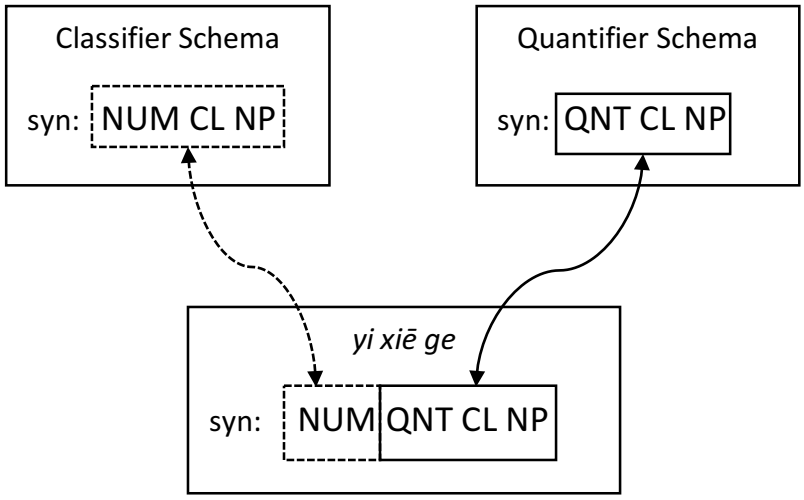

Figure 6.6 ***Yi xiē ge*** **as a quantifier-classifier blend**

6.4.3 Summary

This section shows that *xiē* was originally a quantifier, as it only occurred in various quantifier constructions. Such quantifier constructions were characterised by diminutive semantics. It was not a classifier construction until it started occurring in the *yi* construction, [*yi* CL NP], which is the most prototypical classifier construction. Following the creation of [*yi xiē* NP], the category of [*xiē* NP] became vague: it could be categorised as a quantifier construction, as it had been, or a bare classifier construction, [CL NP].

The origin of the vagueness between a quantifier and a classifier categorisation, manifested in Figure 6.5, which supposedly motivated the blend in Figure 6.6, constitutes the main analytical goal of §6.5, along with novel usages, *bàn xiē* and *liǎng xiē*.

6.5 A realignment analysis

The vague category status of *xiē* might have been more or less always inherent to [*xiē* NP], which can be categorised as a quantifier or bare classifier construction. However, the vagueness only manifested itself following the attestations of [*yi xiē* NP], which allows *xiē* to be categorised as a classifier, and [*xiē* NP] as a bare

classifier construction in which *xiē* fills in the CL slot. It is proposed here that this vagueness results from a process of 'realignment' whereby constructs of a construction come to inherit from a different, pre-existing construction. In other words, it is a change that involves the reconfiguration of inheritance links: what previously inherited from A now can inherit from B. This process can be analogically motivated when users change the category of an item by analogy with another category. For example, Traugott & Trousdale (2013) mentions the common process whereby irregular and less frequent morphological forms are aligned to more productive schemas (e.g. Bybee 2010), such as the original past tense of *blend*, *blent*, which has been realigned to the *–ed* schema, becoming *blended*. Fried (2015: 171) also labels the development of present participle constructions in Old Czech as 'realignment', describing it as "a process in which a combination of elements that may have previously belonged to a different construction crystallizes into a new configuration… through analogy with an existing construction…". Other studies on change in inheritance links include Colleman & De Clerck (2011) who illustrate that the subschemas of the ditransitive in the 18th century have been recruited to their prepositional counterparts (*she watered me the plants* > *she watered the plants for me*). Discussing the PARA INFINITIVE family of constructions in Brazilian Portuguese, Torrent (2015) also demonstrates that historically unrelated constructions can converge under one schema through the reconfiguration of inheritance links.

Originally inheriting from the quantifier schema, *xiē* was realigned to the classifier schema. This will be shown below to be a category change that involves the reconfiguration of inheritance links: having only inherited from the quantifier schema previously, *xiē* became able to inherit from the classifier schema. The actual process probably started in finer details: past generations of users encountered constructs sanctioned by [*xiē* NP]$_{QNT}$, a subtype of the quantifier schema [QNT NP], and interpreted them as inheriting from another pattern, the bare classifier subschema [CL NP], or the *yi* subschema [*yi* CL NP], thereby creating [*xiē* NP]$_{BARE}$ or [*yi xiē* NP]. To examine the realignment in more detail, §6.5.1 considers the change from [*xiē* NP]$_{QNT}$ to [*xiē* NP]$_{BARE}$. §6.5.2 discusses the change from [*xiē* NP]$_{BARE}$ to [*yi*

xiē NP]. §6.5.3 presents evidence for the more 'classifier-like' status of *xiē*, while §6.5.4 accounts for novel usages, *bàn xiē* and *liǎng xiē*. §6.5.5 presents an interim conclusion.

6.5.1 From [*xiē* NP]$_{QNT}$ to [*xiē* NP]$_{BARE}$

It is hypothesised that before the attestation of *yi xiē*(*r*) (see 16–17), which is evidence for the categorisation of *xiē* as a classifier, users neoanalysed *xiē* as a bare classifier, motivated by the similarities between quantifier *xiē* and the CL slot in the bare classifier subschema (this is thus a construction-based reconstruction, as outlined in Barðdal 2013). There is no data directly informing us at which point exactly the category of [*xiē* NP] had changed in users' minds, but the earliest attestations of *xiē* as an independent form are from around the 11th century, so it is very likely when the change happened. The existence of *yi xiē*, *yi xiēr*, *yi xiēzi*, *bàn xiē* and *liǎng xiē* in which *xiē* resembles a classifier, taking numerals such as *yi* 'one', *bàn* 'half' and *liǎng* 'two' (see 4–7 and 16–19) also provides evidence that *xiē* must have been neoanalysed as a classifier at some point before such usages occurred.

Functionally, quantifier *xiē*(*r*) in [QNT NP] and the classifier in [CL NP] are similar because both constitute a counting unit for substances or objects within the constructions they appear in and the constructions' referential statuses are indefinite (see §6.2.2–6.2.3). (1) illustrates this property of *xiē*: *xiē jī* may mean 'some chicken meat' or 'some chickens', while (2) shows that *duī* can count *tǔ* or *shū* ('a pile of dirt/books'). Formally, both quantifiers and classifiers can immediately precede the NP. Moreover, like most classifiers, *xiē*(*r*) is monosyllabic, while quantifiers such as *rènhé* 'any' and *suǒyǒu* 'all' are disyllabic (see §6.2.3).

The monosyllabicity of classifiers deserves more discussion here. Li (2013:37) remarks that "the majority of classifiers in Chinese are monosyllabic". While he does not provide any evidence, data culled from previous studies indicate that he is right. All 28 classifiers in Erbaugh's (1986) diachronic investigation are monosyllabic. Huang (2013) lists a total of 28 classifiers in his narrative and

conversation data, all of which are monosyllabic. The ten most frequent AMWs that Ahrens & Huang (2016) identify are monosyllabic, too.

Historically, the bare classifier subschema predates quantifier *xiē* (see Sun 2001). For example, (22) contains a bare classifier, earlier than *yi xiē*(*r*) (circa 12th century). This suggests that the subschema was available for quantifier *xiē* to be neoanalysed as a member of it.

(22) 乞師指示個入路

qǐ shī zhǐshì ge rùlù

beg master point CL entrance

'Master, please, point me to an entrance.' *Zǔtángjí* (937 – 975)

Ge is the general classifier described in §6.2.1. *Ge rùlù* is a bare classifier construction because it is indefinite and numeral-less, yet denotes a singular unit.

Given these similarities and the availability of the subschema, upon hearing a construct of [*xiē*(*r*) NP]$_{QNT}$, users might (re)interpret it as a construct of the bare classifier subschema, [CL NP], not just the quantifier schema, [QNT NP]. Figure 6.7 visualises the network of constructions involved, simplifying it by collapsing the difference between *xiē* and *xiē*(*r*) and omitting the inheritance from the –*r* schema. Solid and dashed lines represent inheritance relationships and analogical associations respectively. Relevant properties shared between constructions are in bold.

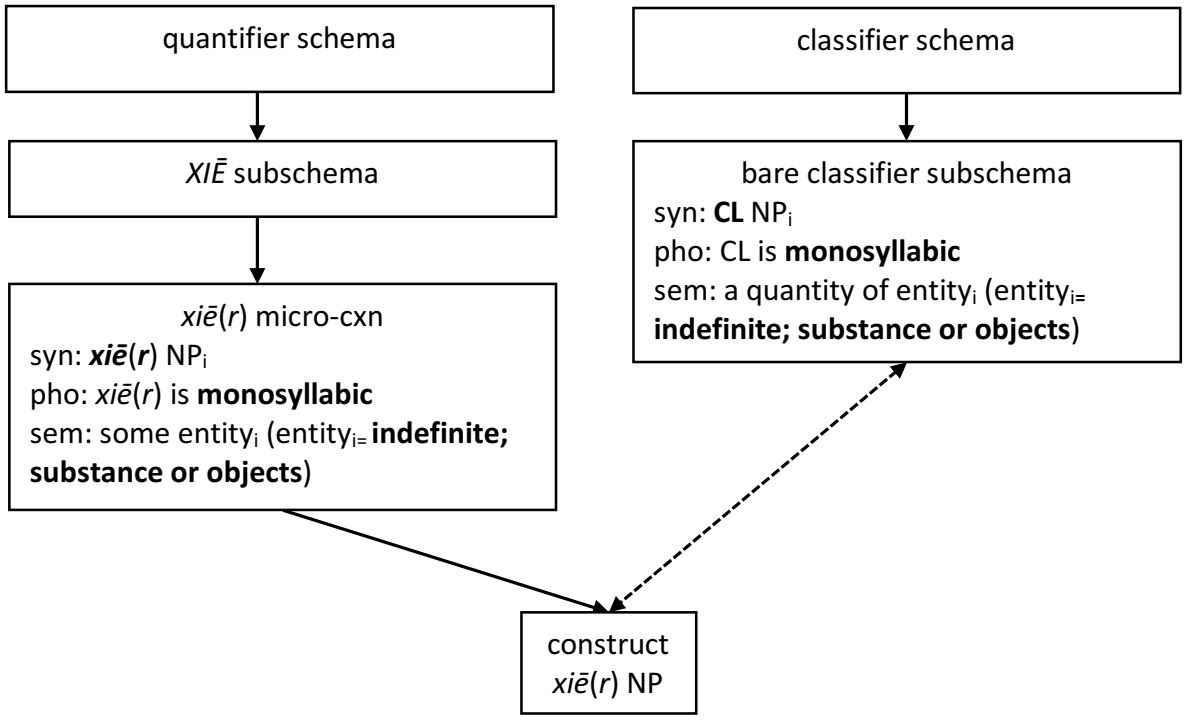

Figure 6.7 Association between a construct of *xiē*(*r*) and the bare classifier subschema

Figure 6.7 shows that *xiē*(*r*) in a construct of [*xiē*(*r*) NP]$_{QNT}$ can be analogically associated with the CL slot in the bare classifier subschema because both share syntactic, phonological and semantic similarities. Once enough associations are in place, users may neoanalyse [*xiē*(*r*) NP] as inheriting from the bare classifier subschema, thereby forming a bare *xiē* micro-construction under it (see also Figure 6.2; for analogisation as neoanalysis see §2.3.2). This is then a case of constructionalisation. However, this does not 'sever' the inheritance link with the quantifier schema; a construct of [*xiē*(*r*) NP] can still be categorised as a quantifier. In other words, [*xiē*(*r*) NP] remains vague between a quantifier and classifier categorisation. The resultant network following the realignment resembles Figure 6.5.

After monosyllabic *xiē*(*r*)'s realignment, the other non-monosyllabic members of the quantifier *XIĒ* subschema (*xiēxiē*, *xiēzi* and *xiē ge*; Figure 6.4) followed suit, presumably motivated by the fact that *xiē*, the common denominator

in all variants, began being categorised as a classifier. Again, there is no direct evidence for exactly when *xiēxiē*, *xiēzi* and *xiē ge* were neoanalysed, but the earliest attestations of *yi xiēxiē*, *yi xiēzi*, and *yi xiē ge* (18–20) are later than *yi xiē*(*r*) (16–17), suggesting that their neoanalyses as classifiers happened later than *xiē*(*r*).

6.5.2 From [*xiē* NP]$_{\text{BARE}}$ to [*yi xiē* NP]

This section analyses how *xiē* was realigned to the *yi* construction that sanctions [*yi xiē* NP]. The earliest attestations of *yi xiē* are from around the 12$^{\text{th}}$ century (see 16 – 17); therefore, it is likely when the realignment happened. Synchronically, [*yi xiē* NP] is labelled as an AMW construction, so the creation of [*yi xiē* NP] could be modelled on the AMW subschema. However, it has not been shown that any AMW construction had been established by the time [*yi xiē* NP] first occurred (e.g. see the account of *diǎn* by Chen 2017). Hence, instead of the AMW subschema, this section examines two other non-cardinal number readings of *yi* that might serve as the analogical pattern for *xiē*. They are the 'totality' and 'indefiniteness' readings. Both are non-compositional with respect to the classifier schema as they do not mean '(cardinal numeral) one' or count precisely one quantity.

[*yi* CL NP] has a totality meaning in PDC in which *yi* signals that the 'whole' or 'entire' classifier forms a spatial area over which the quantified NP is distributed. Li & Thompson (1981) translate it into 'a classifier-ful of NP'. For example, (23) can be read as 'a whole *face* of *dust*', 'dust *all over* the face', or more idiomatically, as translated by Li & Thompson (1981: 111), "a faceful of dust"

(23) 一臉灰

yī liǎn huī

one face dust

[*yi* CL NP] with a totality meaning has had a long history: Ota (2003: 152) also observes that *yi* meaning "totality; wholeness" has "existed since antiquity"

(translation mine). He exemplifies it with a measure word construction (a subtype of classifier constructions that are not sortal classifier constructions; see §6.2.1):

(24) 一國之人

yi guó zhī rén[10]

one country POS person

'An entire country of people.' Ota (2003: 152)

(23) and (24) have the same, non-cardinal-numeral 'totality' *yi*: it emphasises that the 'whole' or 'entirety' of the classifier forms a unit of quantification. A 'totality' reading has also been assigned to *yi xiē* by Iljic (1994: 103): "that *xiē* is always preceded by *yi* (expressed or understood), and only by *yi*, indicates that [*yi xiē*] refers to several occurrences but conceived as ONE whole". That is, *yi* construes the thing(s) being quantified by *xiē* as one unified whole, despite the possibility that the whole can be individuated into parts, as in (1).

Outside the context of classifiers, [*yi* NP] may also have a totality reading in PDC. Iljic (1994: 103) notes that '[this] "totality" reading of *yi* is not uncommon', citing *yi shēng* 'all one's life' (lit. one life). Wiedenhof (2015) notes that *yi* means 'whole' in *yi lù* 'the whole journey' (lit. one road) and *yi wūzi* 'the whole room' (lit. one room). Historically, Dobson (1962: 27) remarks that "*yi* 'one' also occurs in the sense of 'as a whole, the entire, all'". He cites and translates (25) into "be a model ruler to all the regions". Note that despite *yi*, Dobson translates *fāng* 'region' into a plural noun, which suggests *yi* does not signal the precise quantity of *fāng*, but the sense of *fāng* in its entirety.

[10] Measure words can also occur in the construction with *de* 'of': [NUM CL *de* NP] (e.g. Ahrens & Huang 2016). *Zhī* in (24) in Pre-PDC was equivalent to *de* in PDC.

(25) 極一方

jí	yi	fāng
dominate	one	region

‘Dominate the whole region(s).’ Dobson (1962: 27)

[*yi* CL NP] also has an indefiniteness reading. It counts one quantity whose referential interpretation is indefinite, similar to the bare classifier construction (Li & Bisang 2012; Wiedenhof 2015).[11] In PDC it has been shown that [*yi* CL NP] has grammaticalised into an indefinite marker (Chen 2003), following the crosslinguistic trend of ‘one’ developing into indefinite article (e.g. Heine 1997). Historically, indefinite [*yi* CL NP] has also long been available. For example, Bisang cites the following example in which *yi* is found with *bēi* ‘cup’ and *chē* ‘cart’, both measure words, and the whole phrases are indefinite:

(26) 以一杯水就一車薪之火也

yī	yi	bēi	shuǐ	jiù	yi	chē	xīn	zhī	huǒ	yě
take	one	cup	water	help	one	cart	firewood	POS	fire	FP

‘(It is like) using a cup of water to extinguish fire in a cartload of firewood.’

Mencius (late 4th c. BC; based on Bisang 1999:161)

In the above examples *yi* is not a compositional, a cardinal numeral ‘one’. They can be considered as sanctioned by a *yi* subschema [*yi* CL NP]. Its totality meaning is ‘a whole, entire unit of entity’, while the indefiniteness meaning is ‘a unit of entity whose referential status is indefinite’. The CL slot in the *yi* subschema forms ‘one whole unit of counting’, just like *xiē*(*r*) in the bare *xiē*(*r*) micro-construction, while the subschema and the micro-construction both have indefinite

[11] Two properties are not considered here: specificity and the tone of *yi*. Cheng & Sybesma (1999) claim that bare classifiers are non-specific and indefinite *yi* is underspecified for specificity, which is not uncontroversial (Zhang 2013; Jiang 2015). Furthermore, indefinite *yi* carries an invariant neutral tone in some PDC varieties, but whether it did so when *yi xiē* first occurred is not clear. The issue of specificity and the tone of indefinite *yi* are left aside here.

reference. These similarities could have motivated constructs of bare *xiē*(*r*) to be neoanalysed as a classifier able to fill in the CL slot in the *yi* subschema. Figure 6.8 visualises the association link. Once enough associations have accumulated, speakers may form a *yi xiē*(*r*) micro-construction.

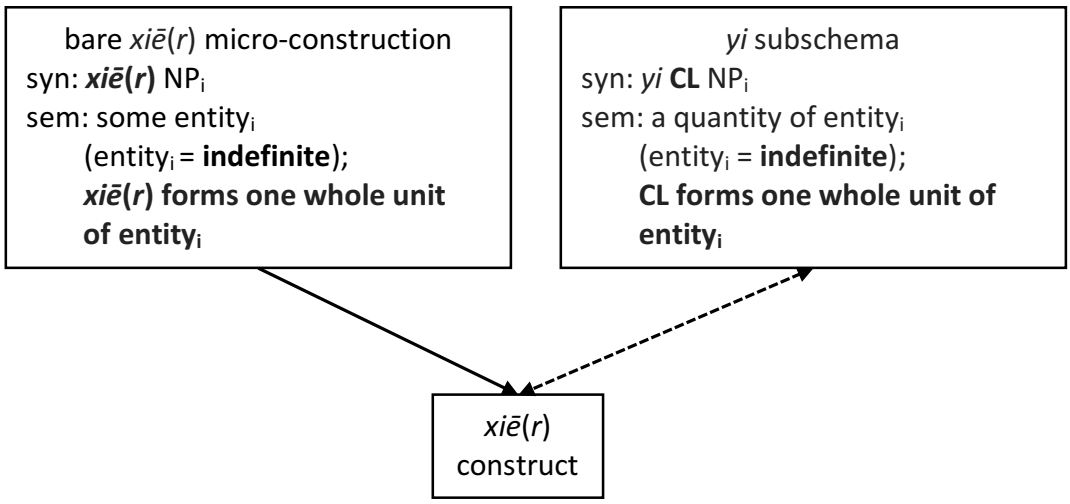

Figure 6.8 Association between *xiē* and the *yi* subschema

Other variants of *xiē* presumably underwent similar processes, but later than *xiē*(*r*).

Quantifier *xiē*(*r*)'s realignment to the bare classifier subschema is hypothesised to have happened first, before the realignment to the *yi* subschema. This hypothesis assumes the development to be gradual (see Lichtenberk 1991b; Traugott & Trousdale 2010 and Rosemeyer 2014 for reviews). However, it could be more abrupt: quantifier *xiē*(*r*) could be realigned to the *yi* subschema directly because quantifier *xiē*(*r*) also has the totality and indefiniteness readings. That quantifier *xiē*(*r*) and bare classifier *xiē*(*r*) share the same form and meaning underlies its vague category status (see §6.2.3 and Figure 6.5). That is, the same association link in Figure 6.7 could be posited between quantifier *xiē*(*r*) and the *yi* subschema. To determine how abrupt or gradual it was requires future research. However, there could be varying degrees of gradualness across speakers, so there might not be one 'correct' answer (see Petré & Van de Velde 2018 for individual variation in change). Regardless, the change from [*xiē*(*r*) NP]$_{QNT}$ to [*xiē*(*r*) NP]$_{BARE}$ or

[*yi xiē* NP] is taken to be a case of constructionalisation. Even though as an item, the function of *xiē* has mostly remained constant in both the quantifier and classifier schemas (§6.4.1), the associations of *xiē* with the bare classifier and *yi* subschemas have created two micro-constructions (compare the post-realignment classifier taxonomy in Figure 6.2 and the pre-realignment quantifier taxonomy in Figure 6.4).

Xiē can still be sanctioned by the quantifier schema after the realignment. This is not unexpected: the category shift of *xiē* is not an abrupt, wholesale change. The peculiar *yi xiē ge*, which cannot be categorised exclusively as a classifier or quantifier (see §6.4.2 and Figure 6.6), also suggests the distinction between classifiers and quantifiers is not discrete. Nevertheless, the realignment analysis predicts that over time *xiē* may become more classifier-like: it may behave more like a classifier, by acquiring more classifier properties and occurring in more classifier constructions. This is borne out by the following observations in §6.5.3

6.5.3 Evidence for the more classifier-like status of *xiē*

First, if *xiē* has become more classifier-like, (*yi*) *xiē ge*, in which *xiē* is not clearly a classifier, should be dispreferred. This is verified by the Sinica Corpus of PDC, where *xiē ge* and *yi xiē ge* each occur once. Second, *yi xiē* should be more frequent than *xiē* without *yi* because *xiē* is more decidedly a classifier in *yi xiē.* Frequency data from the Sinica Corpus of PDC again confirm this: out of the 3823 instances of (*yi*) *xiē* extracted using the criterion in Footnote 6, 63% were *yi xiē* and 37% were *xiē*.

Third, the distributional difference between *xiē* and *yi xiē* can be predicted by the contrast between the bare classifier subschema and the *yi* subschema. This suggests that *xiē* as an item has become more classifier-like in following the regularities of the subschemas. For example, *xiē* is restricted to postverbal contexts now, just like any bare classifier, but it was not so (see Table 6.1, §6.2.2 and §6.4.1).[12]

[12] The issue of the pre/post-verbal distributions of bare classifiers within the time frame relevant to *xiē* is left aside here. If bare classifiers were restricted to postverbal contexts as they are now, it would suggest that *xiē* became more bare-classifier-like. If they were not restricted to postverval contexts, it would suggest that *xiē* changed with them, as both are

Moreover, *xiē* and *yi xiē* exhibit the same kind of difference in preference for the phonological shape of the preceding transitive verb that bare classifiers and their non-bare, *yi* counterparts have. Data from the Sinica Corpus of PDC suggests that *xiē* is preferred following monosyllabic transitive verbs, while *yi xiē* is preferred following multisyllabic (including disyllabic) transitive verbs. The following table summarises the token frequencies of *yi xiē* and *xiē* that occur after mono- or multisyllabic transitive verbs.[13]

	monosyllabic	multisyllabic	total
yi xiē	347	738	1085
xiē	433	54	487
The total of (*yi*) *xi*			1572

Table 6.2 Distributions of *yi xiē* and *xiē* after transitive verbs

A chi-squared test of independence confirmed this: the correlation between *yi xiē* and multisyllabic verbs was highly significant and the opposite kind of preference was found for *xiē* + multisyllabic verbs (χ^2 = 435.79; $p < 0.001$), and this effect was strong (ϕ=0.53; odds ratio=0.06).[14]

The correlations between *xiē* and monosyllabic verbs, and *yi xiē* and multisyllabic verbs also hold between two other classifier pairs: the most general classifier *ge* and the classifier *diǎn* whose AMW use is similar to that of *xiē* in that both have practically no selectional restrictions (see §6.2.1–6.2.2). The following

restricted to postverbal contexts now. More detailed corpus work is required to confirm which scenario is more plausible.

[13] *Xiē* can modify intransitive verbs or adjectives and mean 'slightly; somehow' or occur sentence-finally as a hedge (Kuo 2018). Choosing contexts where *xiē* immediately follows transitive verbs ensures that it is the classifier/quantifier sense of *xiē* 'some' that is being included (see also Footnote 6). Note that morphology has not been considered here because morphological segmentation in Chinese can be arbitrary (Ch. 1.4), and the Sinica Corpus does not provide morphological information. However, given the isolating nature of Chinese, what is phonologically simplex/complex can be assumed to be morphologically simplex/complex (see e.g. Packard 2000).

[14] Statistical tests performed in this section follow Gries (2013: 178–192).

tables sum up (*yi*) *ge*'s and (*yi*) *diǎn*'s distributions after transitive verbs in the Sinica Corpus.

	monosyllabic	multisyllabic	Total
yi ge	314	509	823
ge	344	21	365
(*yi*) *ge*'s total			1188

Table 6.3 *Yi ge*'s and *ge*'s distributions after transitive verbs

	monosyllabic	multisyllabic	total
yi diǎn	162	115	277
diǎn	297	23	320
(*yi*) *diǎn*'s total			597

Table 6.4 *Yi diǎn*'s and *diǎn*'s distributions after transitive verbs

Two more chi-squared tests also confirmed the same kind of preference. *Ge* preferred monosyllabic verbs while *yi ge* preferred multisyllabic ones (χ^2 = 321.98, df = 1, $p < 0.001$) and this effect was also strong (ϕ= 0.52; odds ratio= 0.04). *Diǎn* exhibited the same kind of preference as *xiē* and *ge* (χ^2 = 90.38, df = 1, $p < 0.001$), but the effect was not as strong (ϕ = 0.39; odds ratio: 0.12).

Two heterogeneity chi-squared tests were performed to determine whether the three datasets in Tables 6.2–6.4 exhibited the same degree of preference. The first one indicated that (*yi*) *xiē*, as in Table 6.2 and (*yi*) *ge*, as in Table 6.3 exhibit the same degree of preference (heterogeneity χ^2 = 2.93; df = 1; p = 0.09), which suggests that *xiē* patterns with *ge*, while *yi xiē* patterns with *yi ge*. However, the

second showed that (*yi*) *xiē* and (*yi*) *diǎn* do not exhibit the same degree of preference (heterogeneity $\chi^2 = 48.84$; df = 1; $p < 0.001$).[15]

If we take (*yi*) *ge* and (*yi*) *diǎn* as representative of the contrast between the *yi* subschema and the bare classifier subschema, we may say that the difference in collocational preference between *yi xiē* and *xiē* is predicted to a large extent by the *yi* subschema and the bare classifier subschema (it is not fully predicted by them because *xiē*, *ge* and *diǎn* do not exhibit the same degree of preference).

In sum, the results of the statistical tests suggested that (*yi*) *xiē* behaves like a classifier in terms of collocational preference: [*xiē* NP] follows the regularity of the bare classifier subschema and [*yi xiē* NP] follows that of the *yi* subschema. Finally, novel usages *bàn xiē* and *liǎng xiē*, in which *xiē* is a numeral-taking classifier, also suggest that it has become more classifier-like for some users. This is to be analysed below.

6.5.4 *Bàn xiē* and *liǎng xiē*

Xiē can take not only *yi*, as most grammars observe, but also *bàn* 'half' and *liǎng* 'two'. Examples of *bàn xiē* '(a) few; less than some' and *liǎng xiē* 'two types/groups' include (4) and (6), reproduced below as (27) and (28).

(27) 半些差池

bàn xiē chāchí

half some blunder

'(if there is) a bit of blunder...'

[15] (*yi*) *ge* and (*yi*) *diǎn* also did not exhibit the same degree of preference (heterogeneity $\chi^2 = 35.71$; df = 1; $p < 0.001$). The chi-squared test is sensitive to sample size (i.e. χ^2 is greater with a larger sample). While *xiē* and *ge* respectively have 1572 and 1188 instances, *diǎn* has only 597, which means that the difference between *diǎn*'s χ^2 and that of *xiē* or *ge* could be attributed to *diǎn*'s much smaller sample size.

(28) 最近在團體遇到兩些人…有一些人…另一些人

zuìjìn zài tuántǐ yùdào **liǎng** **xiē** rén… yǒu **yi** **xiē**
recently in group meet two type person there.is one type
rén… lìng **yi** **xiē** rén
person other one type person
'Recently I met two types of people in group meetings… there's one type of people… the other type of people…'

[*bàn xiē* NP]'s meaning is analogically modelled on [*yi xiē* NP]; the former denotes a quantity smaller than the latter, following from the fact that *bàn* 'half' is less than *yi* 'one'. [*liǎng xiē* NP] does not express a quantity more than [*yi xiē* NP], but is motivated by the fact that *xiē* in [*yi xiē* NP] signals 'one whole', following §6.5.2 and Iljic (1994), so [*liǎng xiē* NP] analogically means 'two wholes', which amounts to distinguishing one type/group from another. In [*liǎng xiē* NP], the meaning of *xiē* thus shifts to 'type; group', and for speakers allowing [*liǎng xiē* NP], *xiē* can mean 'type' even when it takes *yi* (see 28).[16]

A prototypical property of the classifier schema is its schematic NUM slot. For speakers who produce *bàn xiē* and *liǎng xiē*, they have treated *xiē* as more classifier-like, or have 'integrated' it into the classifier schema, because it can occur with numerals other than *yi* (i.e. it has become more 'countable', like most other classifiers). In other words these analogically motivated changes can be seen as the result of the interaction between the semantics of *xiē* and the schematic meaning of the classifier schema. As a member of the classifier schema, *xiē* takes on different meanings, depending on what fills in the NUM slot in the classifier schema.

[*bàn xiē* NP] and [*liǎng xiē* NP] are not fully compositional. Even though [*yi xiē* NP] motivates them, it does not fully predict them. *Bàn* is literally half of *yi*, but *bàn xiē* does not necessarily denote half of the quantity denoted by *yi xiē*. Similarly, *liǎng xiē* does not mean 'double the quantity of *yi xiē*' or follow the analogy

[16] *Liǎng xiē* seems to quantify types of humans (see §6.2.2), which reflects the primacy of 'human' in counting (Croft 1994).

between *yi xiē* 'some' and *bàn xiē* 'less than some' to mean 'more than some'. Given their non-compositionality, they are new constructions and their developments are constructionalisations.

Crucially, the history of the meanings of *xiē* does not exhibit unidirectionality, or unidirectional development towards more 'grammatical' or 'procedural' meaning. Instead, it exhibits counterdirectionality. As described in §6.2.2, the type noun meaning of *xiē* 'type; group' is more contentful, even though diachronically later than its original meaning 'some; an indefinite quantity'. The latter can quantify virtually anything, while the former more specifically presupposes a classification taxonomy under which entities may be categorised, subcategorised, and even counted. For example, the speaker in (28) counts (sub)types of humans by using *xiē* with, respectively *yi* 'one' and *liǎng* 'one'. This 'countability' (i.e. that type noun *xiē* can be enumerated, as evidenced by its co-occurrences with *yi* 'one' and *liǎng* 'one') most prominently aligns it with other classifiers, making it more contentful. For example, compare uncountable [(*yi*) *xiē* NP] 'some NP' and countable [NUM *xiē* NP] 'NUM type(s) of NP' with uncountable [*a lot of* NP] 'many/much NP' and countable [NUM *lot*(*s*) of NP] 'NUM plot(s)/lot(s) of NP' (e.g. *two lots of land*). The countable ones are more contentful than the uncountable ones, yet the countable [NUM *xiē* NP] originated from the uncountable [(*yi*) *xiē* NP], while the uncountable [*a lot of* NP] originated from the countable [NUM *lot*(*s)* of NP] (see Traugott 2008; Traugott & Trousdale 2013 for more details). The change from *xiē* 'some' to *xiē* 'type' therefore is a case of degrammaticalisation: it has gained in semantic substance and countability and become more noun-like. This is not incompatible with the constructionalisation analysis presented here, as a case of degrammaticalisation can be a case of constructionalisation (Trousdale & Norde 2013).[17]

[17] What has changed is not only the collocates of *xiē*, but also *xiē*. In examples (5) – (7) and (28) where *xiē* collocates with *yi*, it means 'type', not 'some'

6.5.5 Interim conclusion

Having been able to fill in only the QNT slot in the quantifier schema previously, *xiē* has come to be able to fill in the CL slot in various classifier constructions. For most speakers, they are the bare classifier subschema (§6.5.1) and the *yi* subschemas (§6.5.2; novel usages such as *bàn xiē* and *liǎng xiē* are rare; see §6.2.2). Remarkably, as an item the meaning of *xiē* has been stable (again, for most speakers, who do not produce novel usages); most linguists treat *xiē* in the bare classifier and *yi* subschemas as equivalent, in almost every respect (§6.2.2). However, this does not mean that no constructionalisation has happened during the development of *xiē*. That *xiē* was 'neoanalysed' or 'recategorised' as a classifier suggests that new constructions involving *xiē* were formed under the classifier schema (see §6.5.2; compare Figures 6.2 and 6.4). One might think that constructionalisation might correlate with grammaticalisation. The next section therefore shifts the focus away from constructions, and considers the merits of a grammaticalisation analysis of (*yi*) *xiē*.

Finally, novel uses *bàn xiē* and *liǎng xiē* are argued to be motivated by the classifier schema, and for speakers accepting *liǎng xiē* 'two types; groups', *xiē* has undergone a semantic shift from the more grammatical/procedural 'some' to the more lexical/contentful 'type; group'. This change is also motivated by the interaction between the original semantics of *xiē* and the classifier schema, particularly its schematic NUM. Therefore, there is no unidirectionality in its semantic evolution and the evolution cannot be represented linearly, without referring to levels of schematicity and their interaction.

6.6 Grammaticalisation, reinforcement, and realignment

The creation of *yi xiē* is also a case of reinforcement of the type discussed in the grammaticalisation literature: a process that produces a formally reinforced form that is semantically equivalent to the original form. The semantics of the 'old' form *xiē* is 'some' and the semantics of the 'new', reinforced form *yi xiē* is also 'some'. Therefore, one may wonder if the realignment of *xiē* can also be characterised as

grammaticalisation. If so, then the change from *xiē* to *yi xiē* will qualify as a case of secondary grammaticalisation, as the quantification function of *xiē* 'some', is scalar and procedural. A potential affirmative answer is given in §6.6.1, by drawing on a hypothetical grammaticalisation analysis, but is then rejected in §6.6.2. Generalising previous discussion and analysis, two possible types of reinforcement are proposed in §6.6.3, reinforcement by innovation and reinforcement by realignment. Only the former involves grammaticalisation. The change *xiē* went through is the latter type. §6.6.4 discusses theoretical implications.

6.6.1 *Yi* reinforces diminutivity in *xiē*

Following Lehmann (1995: 22), reinforcement is a process that "[compensates] for and [checks] the decay" of phonological and semantic substance, the result of which is the accretion of form that does not introduce any semantic change.

Given this definition of reinforcement and the recurrent diminutive marking in *xiē*, *yi* may be said to have added to *xiē* to 'reinforce' its diminutive semantics. Before *yi xiē* emerged, the diminutive meaning of *xiē* had been maintained by the reduplicant *–xiē*, diminutive suffixes *–zi* and *–er*, or at times, by itself. However, as it decayed functionally, formally or both, its diminutivity needed 'restoration', which ultimately was provided by *yi*, if we assume the motivation behind reinforcement that Lehmann (1995: 22) suggests. More precisely, *yi* could 'restore' the diminutive meaning of *xiē* because *yi,* and the diminutive markers before it, all signify 'low on the scale of X', following Jurafsky's (1996) metaphoric shift analysis (§6.4.1). That is, the semantics of *xiē* 'low on the scale of quantity', itself an extension from 'low on the scale of size' in *xiēxiǎo* (§6.4.1), was reinforced by various diminutive markers and then *yi*. *Yi* can have a diminutive semantic interpretation that signifies 'low on a numerical scale', or 'the lowest point on a scale of positive integers'. As counting positive integers should be more basic to human life than any other numbers, *yi* is the numeral to mark diminutivity.[18]

[18] In Chinese, *yi* 'one' combined with a classifier functions as a minimiser productively ("the minimizer use of 'one'-phrases is productive"; Chen 2017: 72). For example, *yī diǎn* 'one bit'

This analysis of *xiē* parallels many cases of grammaticalisation. The classic case is Jespersen's Cycle in which an additional and optional adverbial is recruited to reinforce negation initially and then ends up becoming part of standard negation marking (i.e. French *pas* 'step' in *ne* V > *ne* V *pas*; Dahl 1979; Lehmann 1995), which seems redundant on the surface. For Jespersen, Lehmann and many others, the reason why negation needs to be reinforced is that the original negator (e.g. *ne*) has been weakened formally and functionally to the point that it alone cannot perform the task of negation satisfactorily (again, assuming the position of Lehmann 1995: 22; see van der Auwera 2009 for different views and Footnote 19). That is, it has 'decayed' so the function of negation needs to be supported by an additional marker (e.g. *pas*). Similar remarks have been made about other types of cyclical change (e.g. papers in van Gelderen 2009).[19]

There is also a parallel between *xiē* and the diminutive cycle in Sinitic languages. Cao (2006) shows that Sinitic diminutive markers frequently undergo cyclical change, so that there is often redundant diminutive marking. He exemplifies it with Wenzhounese in which an older diminutive suffix, –ʔ, has lost its diminutive function and a newer diminutive suffix –ŋ, whose origin is ŋie 'child', is found attaching to –ʔ, creating forms redundantly marked for diminutivity. The accretion of diminutive marking in *xiē* thus not only has a general functional motivation across languages, but also instantiates a recurrent Sinitic process. This grammaticalisation analysis can be summarised with a 'diminutivity' cline that highlights the history of *xiē* with diminutive makers (reduplication, *–zi*, *–r* and *yi*).

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is a minimiser in *zhǎo bù dào yī diǎn lèsè* (lit. find NEG ASP one bit rubbish) 'cannot find any trash' (translated by Chen 2017: 73; ultimately taken from the Sinica Corpus). While 'one' may be "more clearly in opposition to [zero]" (Robert Truswell, p.c.) in general, therefore is less likely to mark diminutivity, within the context of Chinese, it is probably not unlikely to associate *yi* 'one' with diminutivity, given the productivity of one-phrases as minimsers.

[19] Another interpretation of reinforcement is that the reinforcing item at first is not used to 'restore', but 'emphasise' the reinforced expression (e.g. van der Auwera 2009; Willis 2010). For example, Detges & Waltereit (2002) argue that *ne… pas* at first was used to convey emphatic negation 'not at all', and only came to mean 'not' after 'bleaching'. Under this view, *yi xiē* at first emphasised the diminutivity of *xiē*. This alternative interpretation does not affect the arguments against a grammaticalisation analysis in §6.6.2.

(29) (*xiēxiǎo* ‘small’ >) ***xiēxiē**, xiē**zi**, xiē**r** > xiē > **yi** xiē*

Table 6.5 visualises the parallels between *yi xiē*, *ne* V *pas*, and Wenzhounese diminutive marking. The reinforcing and reinforced expressions are labelled as ‘reinforcer’ and ‘reinforcee’ respectively.

Process	Reinforcee	Reinforcer
xiē > *yi xiē*	*xiē*	*yi*
ne V > *ne* V *pas*	*ne* V	*pas*
n-ʔ > n-ʔŋ	N-ʔ	-ŋ

Table 6.5 Reinforcement, reinforcees and reinforcers

6.6.2 What is grammaticalised in *yi xiē*?

Drawing parallels between *yi* and well-established cases of reinforcement such as *pas* and -ŋ assumes that *yi* has undergone grammaticalisation, but these analogies turn out to be superficial. Recall that *pas* ‘step’ has grammaticalised into a negator and ŋie ‘child’ in Wenzhounese into a diminutive suffix –ŋ. No functional label seems available to *yi* in *yi xiē*, but ‘diminutive marker’. However, unlike –*zi* and –*r* in Chinese or –ŋ in Wenzhounese, *yi* is a diminutive marker only in the context of *yi xiē* and some AMWs. Moreover, Ahrens & Huang (2016) note that AMWs can denote a large approximate quantity (see *piàn* in §6.2.1), which suggests *yi* can be associated with the exact opposite of diminutivity. Therefore, ‘diminutive marker’ does not seem to characterise *yi* precisely. One might postulate that *yi* in *yi xiē* has grammaticalised into an indefiniteness marker, or even a totality marker. However, this does not explain why it is indefiniteness or totality that has been reinforced in *xiē*, while previously it was diminutivity.

Whether *yi* is analysed as a diminutive, indefiniteness, or totality marker, *xiē* > *yi xiē* can only be grammaticalisation if a very broad definition is assumed, such as the one by Wiemer & Bisang (2004: 4) that includes ‘all the processes involved in

the diachronic change and the emergence of such [grammatical] systems'. But this definition is too vague and unrestrictive, just like what grammaticalisation critics have observed (papers edited by Campbell 2001; Joseph 2011). Grammaticalisation is epiphenomenal, being characterised by no unique processes; the processes involved are simply general processes of change (see also Ch. 3.3.1). Moreover, if *yi* in *yi xiē* has undergone grammaticalisation, the same process must have happened to *yi* in *diǎn* and other AMWs, too. It is not an economic analysis if we can view *yi xiē* as the result of the realignment of *xiē* to the *yi* subschema: no grammaticalisation process specific to *yi* in *yi xiē*, or any other AMWs, need be posited, since *yi* has already grammaticalised into marking 'totality' and 'indefiniteness' in [*yi* CL NP], available as an analogical template at the time of *yi xiē*.

Moreover, if we say that *yi xiē* is the result of grammaticalisation, we can also mean that in becoming *yi xiē*, *xiē* has undergone grammaticalisation, or become more grammatical. But as pointed out in §6.2.2, most assume *yi xiē* and *xiē* to be equivalent, especially semantically. It is only when their distributions and category statuses are considered that it become clear that they are different. If one insists on analysing *yi xiē* as more grammatical than *xiē*, one then has to recognise that their difference lies in their categories: *xiē* is (more of) a quantifier, while *yi xiē* is a classifier. This analysis leads to the conclusion that 'classifiers' are more grammatical than 'quantifiers' and the hypothesis, if we assume a 'strong' definition of grammaticalisation that is unidirectional, that there may be a unidirectional development, 'quantifier' > 'classifier' (as in *xiē* > *yi xiē*). However, this analysis is not motivated by Chinese-internal facts: sources of classifiers in Chinese are predominantly nouns, or sometimes verbs (Peyraube 1998; Xing 2012), and no study has shown that quantifiers can be a source of classifiers. Proposing a grammaticalisation analysis (and perhaps a unidirectional view) is not motivated by the data.

In sum, like typical reinforcers in reinforcement, *yi* in *yi xiē* is semantically redundant in the sense that its 'totality' and 'indefiniteness' meanings overlap with those of *xiē*. However, this does not require a grammaticalisation analysis, as *xiē* >

yi xiē can be explained as realignment to a different, yet related and pre-existing (sub)schema, which is already the result of grammaticalisation (from the meaning of '(cardinal number) one' to 'totality' and 'indefiniteness'). We need not see *xiē* > *yi xiē* as grammaticalisation when a more economical explanation already exists elsewhere in the network. A similar line of argument has been advanced by Joseph (e.g. 2004; 2016, and elsewhere)— if more fundamental processes of change apply, we need not posit any special process like grammaticalisation. While grammaticalisation may be defined more broadly as any process that a grammatical form like *xiē* goes through (or essentially, admitting 'secondary grammaticalisation' into our theory of change), that would risk extending the definition of grammaticalisation to triviality.

6.6.3 Reinforcement and realignment

Even though a grammaticalisation analysis is rejected, the creation of *yi xiē* can still be described as reinforcement, as reinforcement and grammaticalisation need not co-occur. Reinforcement here is defined as a process that produces a formally reinforced form that is semantically equivalent to the original form, as in §6.6, but it is not assumed to be caused by any weakening necessarily (as Lehmann 1995 suggests). This section first considers more cases of reinforcement and then proposes a provisional typology of reinforcement in a constructional framework, within which [*xiē* NP] > [*yi xiē* NP] is identified as a case of reinforcement by realignment.

Similar to many critics' view on processes in grammaticalisation, reinforcement is a general process not exclusively associated with grammatical form. Contrary to what Table 6.5 suggests, the reinforcee can also be lexical (i.e. major class items such as nouns and adjectives) and the resultant, reinforced form can be so, too, which means that there is not necessarily any change in the degree of 'grammaticality'. For example, Crowley & Bowern (2010: 188) cite *children* as an example of reinforcement: *childer* was the reinforcee, but an additional plural marker *–en* has been added to it. Croft (2000) cites comparable examples, such as

feet > *feets* and *harder* > *more harder*. Hopper (1994) mentions *height* > *height-th*. These examples indicate that every case of reinforcement exhibits overlapping marking, whether the reinforcee is lexical or grammatical. The reinforcer marks what is already functionally present in the reinforcee, causing no semantic change in the reinforcee.[20]

The reinforcee may also be phrasal. Joseph (2016) discusses one such example, even though he does not explicitly label it as reinforcement. He notes that *as of yet* is a neologism in American English with the same semantics as the reinforcee *as yet* 'up to now' and identifies *as of yet* as motivated by the schema [*as of* X] 'up to X and beyond', in which X is filled by temporal expressions such as *11:00 am* and *Nov. 27th*.

The argument against a grammaticalisation analysis of *xiē* also applies to reinforcement with the lexical and phrasal reinforcees cited above. When a higher-level analogical pattern is available, we need not see each instance of reinforcement as grammaticalisation. For example, the redundant marking in *feets, more harder* and with *as of yet* can be analysed as the result of the reinforcee (e.g. *feet*, *harder, as yet*) being realigned to a different, yet related and presumably more regular schema (e.g. [N*s*], [*more* ADJ], [*as of* X]). This is essentially how Crowley & Bowern's (2010: 188) interpret examples like *children*: "[reinforcement] appears to happen particularly when a form is suppletive or irregularly marked". Their interpretation suggests that reinforcement is not necessarily grammaticalisation: it may happen to regularise irregular forms, by analogy with higher-level schematic patterns (see also a related phenomenon, blending; De Smet 2013). Or in other words, reinforcement may happen simply to 'recategorise' items into different schemas, instead of creating brand new schemas. This interpretation also suggests

[20] Another type of reinforcement mentioned by Croft (2000) is the 'Redundant Acronym Syndrome', e.g. *PIN* ('Personal Identification Number') > *PIN number.* Note also that what seems like a case of reinforcement may not necessarily be one. For example, *more better* is not a case of reinforcement if it means 'better than better' (however, it could be an incipient stage of reinforcement).

that reinforcement is not necessarily caused by any weakening of form or function, but possibly by opacity.

Based on the above discussion, we may distinguish two general types of reinforcement. In both types, the output and input are semantically equivalent and the input (the reinforcee) is formally lengthened by the reinforcer. The first type, reinforcement by 'innovation', incorporates a novel lexical form to express the grammatical function of the original construction (e.g. French *pas* 'step' > [*ne* V *pas*] and Wenzhounese ŋie 'child' > [N-ʔŋ]). The second type, reinforcement by 'realignment', creates a reinforced construction by realigning it to a different schema with comparable meaning. In reinforcement by realignment, the reinforcee can be lexical, grammatical or somewhere in between (cf. *feet, xiē*, and *as yet*). In reinforcement by innovation, the reinforcee is grammatical. While the former involves grammaticalisation, in which the reinforcer grammaticalises, the latter may not. The reinforcer in the latter is part of a pre-established schematic pattern (e.g. *yi* in [*yi xiē* NP] is part of the *yi* subschema; *–s* in [*feets*] is part of the plural schema). Table 6.6 summarises the two types.

Reinforcement type	**Reinforcee's status**	**Reinforcer's change**	**Examples of reinforcement (source of reinforcer)**
by innovation	Grammatical (e.g. *ne* V)	from lexical to grammatical (e.g. *pas*)	*ne* V > *ne* V ***pas*** (*pas* 'step' > ***pas*** 'not')
			N-ʔ > N-ʔ**ŋ** (ŋie 'child' > -**ŋ** 'diminutive suffix')
by realignment	On a lexico-grammatical continuum (e.g. *xiē* NP)	unchanged; part of a schema (e.g. [*yi* CL NP])	*xiē* NP > ***yi*** *xiē* NP (the *yi* subschema [***yi*** cl np])
			feet > *feet**s*** (the plural *–s* schema [n***s***])

Table 6.6 Types of reinforcement

Crucial to the distinction between the two types is that reinforcement by realignment requires there to be a pre-established, higher-level schema as an analogical template. Note that both types of reinforcement yield constructions with multiple sources: [*ne* V *pas*] has [*ne* V] and [*pas*] as its sources, while [*xiē* NP] and [*yi* CL NP] are [*yi xiē* NP]'s sources. Similar to indirect speech act constructions such as [*bì p*, *then q*] and [*fēi p*, *bú* X] in Chs. 4–5, this makes it difficult to categorise a case of reinforcement as 'primary' or 'secondary' grammaticalisation. For example, for the evolution of [*ne* V *pas*], if we count *pas* as the starting point, then it is a primary grammaticalisation process, from *pas* > [*ne* V *pas*]; if we count [*ne* V], then it is a case of secondary grammaticalisation.

It remains to be explained why some realignment processes yield reinforced forms, but not all (e.g. *blent* > *blended*, **blented*) and how strong analogical association should be in order to trigger reinforcement by realignment, which could be modelled by collostructional analysis (Gries & Stefanowitsch 2004; Hilpert 2013). More careful consideration of strength of attraction and more case studies of the motivations and processes involved in reinforcement may also refine or modify the typology.

Finally, reinforcement by realignment introduces increases in token and type productivity at the level of the schema being realigned to. As pointed out in Ch. 3.4.3, a traditional linear representation in grammaticalisation studies would not be able to account for these kinds of increases as clearly. For example, the classifier schema has become more productive after the realignment of *xiē*'s, because it now has two new micro-constructions (see Figure 6.2), and for those who use *xiē* to express the meaning of 'type; group', it has an additional new one. This kind of increase in productivity post-reinforcement by realignment, theoretically, may lead to further increases in schematicity and constructionalisation. Whether it is true or not remains to be tested.

6.6.4 Discussion

Historical linguists have asked how diachronic construction grammar resembles or differs from the grammaticalisation framework (e.g. Coussé et al. 2018). The above discussion highlights that by thinking in terms of constructions, the analyst can avail themselves of higher-level abstractions (e.g. the bare and *yi* subschemas) where explanations are already available, and avoid concentrating on one single morpheme or its variants, thus missing the bigger picture. That is, only thinking along the clines (e.g. the 'diminutivity' cline of *xiē* in 29) might lead the analyst away from important generalisations and oversimplify the complexity involved in the fine-grained organisation of the network of constructions.

Furthermore, a linear view might tempt one to see everything as grammaticalisation, which is not always a relevant analysis. Cases of reinforcement by realignment warn against the tendency towards seeing any change involving grammatical form as 'grammaticalisation' (cf. Wiemer & Bisang 2004). Reinforcement can happen because of realignment to a different schema, which does not necessarily involve grammaticalisation.

Fischer (2018: 83) also provides a similar critical assessment of the traditional cline-based grammaticalisation approach: 'the grammaticalisation model almost forces one to look for only typical instances of grammaticalisation clines ... The construction approach is a big step forward, because the input (of change; YHK) may consist of a number of independent constructions that may form a family...'. This is also what the previous two chapters have tried to demonstrate: directionality cannot be simplistically captured by postulating relationships between two categories without considering the overall constructions involved. In the case of *xiē*, the change that it has gone through cannot be reduced to the input *xiē* and output *yi xiē*, or the syntactic category of the input, 'quantifier' and that of the output, 'classifier'. The development crucially involved various related constructions (the quantifier schema, the bare classifier subschema and the *yi* subschema) and how *xiē* was recategorised or realigned from one to another by users, which is not reducible to a cline. Novel uses in which *xiē* is used as a type noun meaning 'type;

group' also constitute a counterexample to unidirectionality: they suggest that *xiē* has become more lexical, not grammatical. Crucially, to explain novel uses of *xiē*, one needs to have a schematic understanding of both *xiē* and the classifier schema, which, again, cannot be represented as a cline. Similar remarks against 'clines' have also been made by Traugott & Trousdale (2013), Trousdale (2014), Torrent (2015) among many others.

Diachronic construction grammar, with its multidimensional focus, thus can help the analyst avoid the pitfalls of a linear view by focusing on higher-level generalisations, on which explanations may be available without positing (secondary) grammaticalisation in every case of grammatical change.

6.7 Conclusion

This chapter has shown that *xiē* 'some' was originally a quantifier but underwent realignment with the classifier schema. Realignment is defined as a process that changes the inheritance link of a construction. As a result of realignment, now *xiē* can take the numeral *yi* 'one' (i.e. appear in the *yi* construction), be categorised as a classifier and motivate sanction novel usages such as *bàn xiē* '(a) few' and *liǎng xiē* 'two types'. As the creation of [*yi xiē* NP] is also a case of reinforcement ([*xiē* NP] and [*yi xiē* NP] are semantically equivalent), a grammaticalisation analysis was also suggested, but then rejected, as it implied false parallels between *yi* and grammatical reinforcers. *Xiē* was realigned to the already grammaticalised *yi* subschema that sanctions [*yi xiē* NP]. Therefore, no grammaticalisation analysis, whether of the primary or secondary kind, needs to be posited for *yi*, *xiē*, or *yi xiē*. Generalising the realignment analysis, two types of reinforcement were distinguished: reinforcement by innovation and by realignment. While the former involves grammaticalisation, the latter results from realignment to a different, yet related, pre-established schema and may not directly involve grammaticalisation. The change *xiē* underwent is the latter type: reinforcement by realignment. Importantly, both types of reinforcement suggest that they cannot be simplistically

categorised as ‘primary’ or ‘secondary’ grammaticalisatdion, as multiple sources, sometimes both lexical and grammatical, are involved.

This chapter highlights the importance of higher-level generalisations and the multi-dimensional nature of language change. In accounting for change, varying degrees of schematicity need to be considered before one can say whether a new grammatical category has been established, or grammaticalisation has happened. For example, in the case of *xiē*, the most schematic patterns (the quantifier and classifier schemas), the partially schematic and partially substantive patterns (the bare classifier and *yi* subschemas) and the substantive (constructs of *xiē*) all have to be examined in order to arrive at an adequate understanding of how *xiē* has changed.

Chapter 7

Obsolescence: A prototypicality-based account

7.1 Introduction[1]

Unlike previous chapters, which focus on 'growth', this chapter concerns 'loss'. On the famous cline of grammaticalisation proposed by Givón (1979), 'loss' is represented as the final stage of grammaticalisation: discourse > syntax > morphology > morphophonemics > zero.[2]

However, as has been repeatedly pointed out (e.g. Breban & Kranich accepted), research following Givón (1979) typically only considers all the stages preceding, but not including loss, or at least not in detail (e.g. Hopper & Traugott 2003: 172–174 deal with loss briefly). Some constructional studies on loss in English include Trousdale (2008) on the impersonal construction, Petré (2010) on *weorðan* 'become' and Noël (2019) on deontic constructions such as *be obliged to*. Outside English, Colleman & Noël (2012) look into the Dutch evidential construction, parallel to *be said to* in English, and Rosemeyer (2014) investigates the decline of the Spanish auxiliary construction *ser* + *past participle*. Other studies that look at phenomena closely associated with loss include Van de Velde (2014) on 'degeneracy' and Norde & Trousdale (2016) on 'exaptation', both of which examine Germanic languages, such as English and Dutch. What is notably missing from both the grammaticalisation and constructionalist literatures is data from Chinese. This chapter therefore aims to contribute to the theoretical modelling of loss, using data from the history of Chinese.

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[1] Acknowledgement: this chapter contains large portions of Kuo (accepted c), which has been accepted for publication in *Lost in Change*, part of the *Studies in Language Companion Series*. It is under copyright, and the publisher should be contacted for permission to re-use the material in any form.

[2] By zero, Givón (1979) does not intend "meaningful zero" (Bybee 1994; 2010: Ch. 10). For example, the present habitual in English (e.g. "*I drink decaf*"; Bybee 1990: 238) is zero coded, but meaningful.

Similar to the constructionalist studies cited above, this study focuses on schematic patterns, but examines an adverbial adjunct schema in Chinese, the adverse avertive schema. Exemplified in (1), the adverse avertive can be charaterised by the paraphrase 'almost did something adverse' and by the form [ADVERB (NEG) VP], where the optional NEG slot contains a negator (e.g. *bú* in 1) that actually does not negate the truth value of the proposition. In (1), the ADVERB slot is filled by *zhēngxiēr* (glossed as 'AA', for 'adverse avertive').

(1) 爭些兒不殺了一個人

zhēngxiēr	bù	shā	le	yī	gē	rén
AA	NEG	kill	PFV	one	CL	person

'(I) almost killed someone.' *Zhāngxié zhuàngyuán* (late 13th c.)

Building on Goldberg's (2006) proposal that the most prototypical member of a schema motivates the formal and functional composition of the schema, this chapter shows that it can be extended to obsolescence as well: schema loss can be related to change in prototypicality. Using the adverse avertive schema as an example, it is shown that its older prototypical members motivated it, but a newer one demotivated it, leading to schema loss, by hypothesis because the newer one had a different lexical origin and pragmatics. Similar to previous chapters, the analysis highlights the fact that the linear, or unidirectional view, as represented in (1), does not do justice to the fine-grained details involved in the loss of the adverse avertive schema: not only 'growth', but also 'loss' is multidimensional and not easily reducible to a linear representation.

This chapter is organised as follows. §7.2 defines the scope of investigation as schema loss. §7.3 discusses construction grammar and prototypicality. §7.4 introduces the adverse avertive schema and describes its history. §7.5 analyses its loss in terms of change in prototypicality. §7.6 compares this case study to loss-related processes such as 'renewal', 'degeneracy' and 'exaptation'. §7.7 concludes.

7.2 Loss characterised

How to define loss may be more difficult than it seems. An expression may fall into disuse in general, yet linger in certain registers of use or genres so that it never truly dies out in the sense that it is not attested anymore. Quantitatively, decreases in frequency do not always entail that obsolescence is happening, and an obsolete item might not always have zero frequency after it supposedly stopped being productive. What kind of frequency threshold that one sets for loss, to some extent, can thus be arbitrary (see more discussion in Rudnicka accepted; Tichý accepted).

Qualitatively, to define loss is also not straightforward: loss can occur at various levels of schematicity and to various components of a construction. Construction grammar's dedication to usage-basedness may proliferate potential cases of loss: if we define meaning broadly to include traditionally language-external notions such as genres and social meanings (which is not controversial; see Östman & Trousdale 2013; Fischer & Nikiforidou 2015), every subtle absence of meaning at one point as compared to an earlier time could constitute loss. It then follows that if a construction has become restricted to genre and social niches, which is common in declining constructions (see Traugott & Trousdale 2013: 67-68; Hundt 2014), it may be not only 'declining/obsolescent', but also 'dead/obsolete' in some sense: they have already experienced loss, having lost associations with other genres or social groups. The problem with this kind of microscopic view that pays close attention to meanings is that we may multiply cases of loss *ad infinitum*. That is, a construction's restriction to niches may already entail multiple instances of loss, before it actually ceases to exist.

Such a microscopic view on meaning allows for more cases of loss than we would find if we define loss more narrowly as formal or language-internal loss. However, a microscopic view may not be undesirable. After all, loss and gain are often intertwined: Smirnova (2015a, b) sees the expansion of a new construction into new contexts as 'loss of contextual constraints', and loss of lexical meaning, or 'bleaching', can lead to growth of grammatical meaning (Sweetser 1988; Brems 2011; Traugott & Trousdale 2013). Following its restriction to niches, a construction

may acquire new associations with certain stylistic or sociolinguistic contexts, which in a sense is 'gain' as well.

Nevertheless, a microscopic view indeed makes investigation into loss less focused. To delimit the scope, the kind of constructional loss under investigation will be defined as schema loss. This allows us to gloss over functional nuances that are attributable to less schematic constructions, and focus on cases in which both form and meaning are lost.[3] More specifically, some reasons for restricting the scope to schema loss are as follow.

As pointed out above, some expressions do not die out completely; rare words and phrases may still persist in certain communities. Historical linguists, for example, may know obscure words and phrases from their research that only specialists know. If a corpus is large enough, some of such words and phrases may be included in it. Restricting the investigation of loss to schema loss allows the researcher to bypass defunct, unproductive expressions that linger in certain corners of the speech community. Second, after schema loss, more substantive members of the schema may take on a life of their own, which is arguably outside the purview of loss. Most studies on growth typically are justified in not exploring ways of how a new construction or expression undergoes further changes or meets their demise. Therefore, if loss is to be on an equal footing with growth, focusing on loss and loss alone is also justified. In other words, researcher can simply examine how a schema 'broke up', without necessarily committing themselves, if they do not want to, to searching for the 'flotsam and jetsam' of what is left of the schema. For example, *methinks* is a relic of the English impersonal schema (for a constructional account, see Trousdale 2008). Despite its obvious (for historical linguists) connection with the impersonal schema, there is no productive impersonal schema sanctioning it now. Therefore, we need not concern ourselves with 'relics' like

[3] Defining what constitutes an obsolete schema is not unlike defining what consisutes a 'new' schema: to a certain extent it depends on the analyst's decision, which can be arbitrary (see Flach 2020; §2.4.1). In §7.5.1 – 7.5.2 more explicit formal and functiona properties will be identified to justify the statement that the adverse avertive schema has obsolesced.

methinks or their synchronic status (such as what schema sanctions it), if our focus is on schema loss. Similarly, 'restriction to niches' may be characterised as part of schema loss. If following restriction, there is any association with niches (such as registers or genres) that becomes the defining property of a construction, the construction may not be exactly the *same schematic* construction. The focus on schema loss therefore also does not require us to account for any new 'niche' association (at least not in great detail), or any new construction that is the reflex of the obsolete schema (see especially Footnote 18 for a construction with niche associations).

However, this is not to say that lower-level constructions are not important. Schemas are built on lower-level constructions and users' experience with language. As we will see, the demise of a schema has to be explained in terms of its more substantive members and tokens of use, too.

7.3 Prototypicality, construction grammar and diachronic construction grammar

Categorisation in Prototype Theory is not absolute, but graded: organised around the 'prototype', members of a category can be more or less representative of the category. Their frequency of use tends to differ, too: what is more prototypical tends to be more frequent. This is true not only in conceptual categories represented by substantive items such as *furniture* and *bird*, but also schematic grammatical patterns (e.g. Langacker 1987; Lakoff 1987; Geeraerts 2006; especially the accounts of the subject-auxiliary inversion construction by Goldberg 2006 and Chen 2013). The section reviews and generalises the relationship between a schema and the most prototypical member that instantiates it, as discussed in Goldberg (2006: Ch. 4) regarding argument structure constructions (ASCs).

§7.3.1 introduces Goldberg's proposal that the most prototypical member of an ASC guides users' acquisition. §7.3.2 extends the idea to adjunct constructions in diachrony and describes 'the most prototypical member' as 'constructional meaning supplier': the member that scaffolds the learning of the schema and upholds its composition.

7.3.1 Prototypicality in ASCs

Goldberg (2006: Ch. 4) notes that in child-directed speech, there is only one verb that is highly frequent in each of the ASCs listed below. She describes such verbs as 'general-purpose'. For example, *go* in the intransitive motion, *put* in the caused motion, *give* in the ditransitive are much more frequent than any other verbs. Table 7.1, adopted from Goldberg (2006: tables 4.1 and 4.3), outlines the form and meaning of each construction and general-purpose verb.

verb	construction label	form	meaning
go	Intransitive motion	SUBJ V $OBL_{path/loc}$	X moves $Y_{path/loc}$
put	Caused motion	SUBJ V OBJ $OBL_{path/loc}$	X causes Y to move $Z_{path/loc}$
give	Ditransitive	SUBJ V OBJ OBL	X causes Y to receive Z

Table 7.1 Forms and meanings of general-purpose verbs and their constructions

Goldberg remarks that in acquisition, "patterns are learned on the basis of generalizing over particular instances" (Goldberg 2006: 79) and that general-purpose verbs are what children generalise over to learn ASCs. Goldberg draws her explanations from Prototype Theory. General-purpose verbs are prototypes in their respective ASCs: quantitatively they are the most frequent and qualitatively their properties correspond to ASCs to such an extent that they can help predict and acquire ASCs' form and meaning.[4]

The proposal that general-purpose verbs encode, or at least correlate with ASCs' form and meaning has also been made independently (see Casenheiser & Goldberg 2005; Goldberg 2006 for reviews). For example, Goldberg's (1995) analysis of the ditransitive relies on *give*. Just like *give*'s semantics, the ditransitive

[4] Note that it is not the other way around; ASCs are less likely to help predict and acquire general-purpose verbs, as child language acquisition is item-based (Tomasello 2000; Goldberg 2006).

construction prototypically means 'agent successfully causes recipient to receive patient'. Other ditransitive patterns are analysed as extensions from this prototypical sense. Verbs of future transfer in the ditransitive mean 'agent acts to cause recipient to receive patient at some future point in time', as in *leave someone something* (see Goldberg 1995: Ch. 2).

Goldberg et al. (2004) and Casenheiser & Goldberg (2005) further demonstrate the role of prototype in schema-learning with experimental results. If a schema in an artificial language had a prototypical organisation in terms of frequency like the ASCs, learning was more successful. That is, if there was one particularly frequent member in a schema, it was easier to learn than a condition where members were more or less equally frequent. These results align with literature on non-linguistic categorisation: category learning is more successful if frequency of input is skewed around a particular instance, i.e. the prototype (general-purpose verbs, in the case of ASCs).[5] The cognitive explanation for the connection between prototypicality and learning is that prototypes provide 'cognitive anchoring': they serve as a reference point that guides learning because they are the most frequent and representative (Goldberg 2006: 89).

In sum, general-purpose verbs are prototypes in their respective ASCs and play an important role in acquisition because children learn ASCs by generalising over tokens of them: they help predict ASCs' form and meaning by providing cognitive anchoring. §7.3.2 generalises this relationship between general-purpose verbs and ASCs to adverbs and adjunct constructions in diachrony.

7.3.2 Extending prototypicality beyond ASCs

Goldberg (2006: 89) notes "in the case of other constructions, relevant skewing of the input could be around a noun, adjective, or complementiser". That is, prototypical organisations could be found within non-ASC constructions. This

[5] Frequency is not the only factor that determines prototypicality, despite 'a strong correlation between the frequency with which a token occurs and the likelihood it will be considered a prototype by the learner' (Goldberg 2006: 85). Meaning plays a role, too (Geeraerts 2006). See also §7.3.2.

follows from the constructional commitment to 'surface generalisations' (Goldberg 2002): learners generalise over specific instances of language use; therefore, every abstract schema can be associated with and predicted by more concrete members of the schema, very often to the point that they are statistically skewed towards certain lexically concrete items (Stefanowitsch & Gries 2003; Gries & Stefanowitsch 2004). It is thus consistent with Goldberg's approach to extend the findings regarding ASCs to adjunct constructions such as the adverse avertive, with the following caveats.

First, in order to generalise the notion of 'general-purpose verb', 'the most prototypical member of a schema' will be used, or more succinctly, 'constructional meaning supplier'. Since users build up schemas around their respective prototypes, in a way prototypes supply schemas with meaning, just like how an ASC's meaning can be 'read off' from its general-purpose verb because the latter is the basis of generalisation for the former (e.g. the ditransitive construction's meaning of 'cause to receive' is read off from that of *give,* and the caused motion's 'cause to move' from *put*).

Second, as frequency strongly correlates with prototypicality, in the absence of native speakers to consult, frequency can be used inferentially as a (partial) indicator of prototypicality in diachronic studies. This makes the prediction that whichever member is the most frequent is the prototype and thus supplies the schema with meaning. The decision to use frequency as a proxy for prototypicality risks putting the cart before the horse: something could be the most frequent *because* it is the most prototypical, not the other way around (see also Geeraerts 2006: Ch. 2.5). However, frequency will not be the sole measure; functional evidence will also be used to determine prototypicality.

Finally, it should be noted that not every case of prototypical organisation can be qualitatively interpreted in ways that ASCs have been. Schema learning does not always hinge closely on a perfect correspondence between the semantics of the schema and its most prototypical member. For example, it is not immediately clear which auxiliary in English is the most prototypical member of the category of

auxiliaries (or that there is only a single auxiliary schema), or assuming that there is one such schema, how the meaning of the category is exclusively supplied by one auxiliary and then extended to others (e.g. in the same way that the ditransitive schema's meaning is supplied by *give* and then extended to verbs of future transfer like *leave*). For example, dynamic modal auxiliaries, whose meanings are very different from other modal auxiliaries in English, yet display morphosyntactic features that qualify them as auxiliaries in English (see Ch. 4). In the case of the adverse avertive schema, however, the closeness of fit in terms of meaning between the schema and its members is much greater (see §7.4 below), with the members' lexical meanings representing alternative ways of construing the schema meaning. Therefore, unlike auxiliaries in English, the semantic organisation of the schema is much more transparent and more likely to be based on the supply of meaning from its members.

This study will show that the demise of the adverse avertive schema, an adjunct schema with an adverbial function, is related to change in constructional meaning supply. While older suppliers' meaning motivated the schema's form and meaning, a newer one could not, as it did not have a comparable meaning supply that could sustain the survival of the schema.

7.4 The adverse avertive schema in Chinese

§7.4.1 starts with a brief discussion of data sources. §7.4.2 describes the whole schema, while §7.4.3 details its component parts. As a long history is involved, §7.4.2–§7.4.3 are necessarily an idealised 'snapshot' description of the schema (for more detail, see the dissertation-length treatment by Kuo 2016a).

7.4.1 Data sources

Pre-PDC data used in this chapter were drawn from the CCL Corpus. The subsections utilised included all the dynasties from the *Yuán* Dynasty (1271–1368) to the Republic of China (ROC) Era, established in 1912. Data from the ROC Era are subdivided into two periods: *Mínguó* (lit. 'republic') and *Xiàndài* (lit. 'modern'). The

corpus does not specify when the former ends or the latter begins, but that the latter only includes data from before 1949 (when the communist People's Republic of China was established and ousted the ROC). In this chapter, the corpus' periodisation is retained, but the two ROC periods will be referred to as 'Early Republic' and 'Pre-1949 Republic'. As the *Yuán* Dynasty subsection is much smaller than the other subsections, data from a genre subsection, *Yuánqǔ*, a genre specific to the *Yuán* Dynasty, were also included.[6]

PDC data are represented by the Sinica Corpus. It was chosen over the CCL Corpus to represent PDC because the latter's PDC section (labelled *Dāngdài*, 'contemporary'; from after 1949 until today) has a lot of 'noises': sampling errors, repetitions and even linguistic essays that analyse the adverse avertive. There is a gap in coverage between the Sinica Corpus and the Pre-1949 Republic section of the CCL Corpus: the former contains only data from 1981 to 2007. However, choosing the CCL Corpus to represent PDC would not solve this issue. Apart from noises, the CCL Corpus's PDC section provides no specific dates that assure us of the temporal continuity between its pre-1949 and PDC sections. Instead of combing through the CCL's PDC section yet still struggling to properly reconstruct the post-1949 history of the adverse avertive, continuity between the Pre-1949 Republic section and the Sinica Corpus has been assumed.

7.4.2 Overview of the schema

The adverse avertive schema is an adjunct construction with an adverbial function and the following form: [ADVERB (NEG) VP]. The ADVERB slot is typically filled by items of verbal or adjectival origins, while the optional NEG slot is filled by negators. The semantic function of the NEG slot is 'expletive' (or 'pleonastic') in the sense that the negator in it does not negate the truth value of the proposition denoted by the VP, even though outside the schema the negator typically does. The meaning of

[6] The number of characters in each section: 961,884 in *Yuán*, 21,038,301 in *Míng*, 48,109,077 in *Qīng*, 35,371,339 in Early Republic and 15,250,163 in Pre-1949 Republic. Data from *Yuánqǔ* and *Yuán* have a combined total of 6,713,739.

the schema can be paraphrased as ‘almost did something adverse’, or ‘something adverse almost happened’, and decomposed into four functional features: pastness, imminence, counterfactuality, and adversity. A construct of the schema with a filed NEG slot is (1), reproduced as (2):[7]

(2) 爭些兒不殺了一個人

zhēngxiēr	bù	shā	le	yī	gē	rén
AA	NEG	kill	PFV	one	CL	person

‘(I) almost killed someone.’ *Zhāngxié zhuàngyuán* (late 13th c.)

The schema is not compositional in that items filling in the ADVERB or NEG slot do not fully predict the form or meaning of the schema. That is, the schema’s four functional features (pastness, imminence, counterfactuality, and adversity) and expletive negation cannot be fully attributed to the individual parts that make up the schema, qualifying it as a construction in Goldberg’s (1995) sense.

The first three descriptive functional features, pastness, imminence and counterfactuality, are inspired by Kuteva (2001), while ‘adversity’ is inspired by Heine & Miyashita (2008). Kuteva (2001) assigns the label ‘avertive’ to a crosslinguistic category that expresses ‘pastness, imminence, counterfactuality’ simultaneously (see also Kuteva 1998). It describes a ‘past’ action that was about to happen (‘imminence’), but did not (‘counterfactuality’). For example, Bulgarian expresses it using the construction [*štjax da* V].[8]

(3)

Šteše	da	se	poreže
want.3SG.IPFVCONJ.PTCL	REFL	cut. 3SG.PRS	

‘She/he nearly cut her/himself.’ Kuteva (2001: 88)

[7] One may think that the reading of ‘pastness’ in (2) comes from the perfective marker *le*. However, other instances of the schema still have the reading of ‘pastness’ without any aspectual markers, which suggests that the schema itself encodes pastness. See (6), (7) and (9).

[8] The avertive can be found in several languages, French *avoir failli* + *infinitive* being one of them (see Kuteva 2001: 78–85 for a survey).

The label ‘adverse’ is used by Heine & Miyashita (2008) to describe ‘threaten’ verbs that are similar functionally in various European languages. The precise characterisation of such verbs varies, about which there has been much research (see Heine & Miyashita 2008 for a review). For Traugott, *threaten* in English is epistemic and expresses that “the speaker views the proposition as likely, and evaluates it negatively” (1993: 350):

(4) I am sometimes frightened with the dangers that threaten to diminish it
(circa 1780 AD; Traugott 1993: 350)

However, for Heine & Miyashita (2008), such verbs signal the proximative aspect (e.g. ‘be about to’ or ‘imminence’ in Kuteva’s terminology) and adversity, so that they can be paraphrased as “something undesirable is about to happen” (Heine & Miyashita 2008: 56).

(5)	Mein	Mann	droht	krank	zu	werden
	my	husband	threatens	sick	to	become
	‘My husband threatens falling ill.’					Heine & Miyashita (2008: 56)

The adverse avertive in Chinese resembles both the avertive and *threaten*-verbs in that it describes an imminent, past action that would have negatively affected someone, typically participant(s) of the action, the topic or speaker, but did not. An approximate English equivalent might be *was*/*were in danger of Ving*. For example, (2) shows that the subject would have been negatively affected by (unintentionally) committing homicide, or the object ‘someone’ would have been killed, while (6) shows that the topic *Sītúlǎng*, not the subject *yǎnlèi* ‘tear(s)’, would have been negatively affected (the distinction between ‘topic’ and ‘subject’ follows that of Li & Thompson 1981).

(6) 司徒朗一回頭看了看賀豹，眼淚差點流下來

sītúlǎng yī huí tóu kàn le kàn hèbào, yǎnlèi
Sītúlǎng as.soon.as turn head look PFV look Hèbào tear
chādiǎn liú xiàlái
AA drip down

'As soon as Sītúlǎng turned around to take a look at Hèbào, his tears almost fell down.' *Yōngzhèng jiànxiá tú* (ca. 1928–1943)

The following table sums up the functional characteristics of the averse avertive and contrasts them with similar expressions.

	adverse avertive	avertive	*threaten* verbs	proximative
pastness	V	V		
imminence	V	V	V	V
counterfactuality	V	V		
adversity	V		V	
paraphrase	*was/were in danger of*	*was/were on the verge of*	*Threaten;* (4) and (5)	*Be about to; almost*

Table 7.2 Summary of the adverse avertive, avertive, *threaten* verbs and proximative

Given the Principle of No Synonymy (Goldberg 1995: 67), the two variants of the schema, [ADVERB VP] and [ADVERB NEG VP] are expected to differ semantically or pragmatically. Drawing on crosslinguistic data, Ziegeler (2016: 19) hypothesises that expletive negation in expressions similar to the adverse avertive is 'intersubjective' in that it signals that "the speaker is aware of the emotional impact on the addressee of uttering a statement about closeness to misfortune". Following

her hypothesis, [ADVERB NEG VP] is taken to be pragmatically different from [ADVERB NEG VP] in being more intersubjective.

The existence of [ADVERB NEG VP] does not block [ADVERB VP] from combining with a canonical negator. Therefore, (7) is also grammatical and instantiates the schema as well— the negator does not instantiate the NEG slot within the schema, but the canonical negation pattern within which it actually negates. This can be contrasted with (2) or (8), where the negator is expletive.

(7) 我姓名險些不保

wǒ	xìngmìng	xiǎnxiē	bù	bǎo
1SG	life	AA	NEG	secure;keep

'I almost did not retain my life (I almost lost my life).'

Sānguózhì pínghuà (c. 1320)

(8) 險些兒不送了楊謝祖的性命

xiǎnxiēr	bu	song	le	Yáng	Xièzǔ	dì	xìngmìng
AA	NEG	cost	PFV	Yáng	Xièzǔ	POS	life

'It almost cost *Yáng Xièzǔ*'s life.' *Wáng Zhòngwén* (1273–1347)

Given a filled ADVERB slot, the sequence 'NEG VP' may be ambiguous in that the negator can be either expletive or canonical. As many researchers have pointed out since Zhu (1959), adversity constrains the interpretation of negation in Chinese (see Li 1976; Peyraube 1979; Biq 1989). Because the sequence 'NEG VP' must be adverse, the negator is expletive if VP conveys adversity, e.g. 'cost *Yáng Xièzǔ*'s life' in (8). The negator is canonical if VP alone conveys no adversity, e.g. *bǎo* (*xìngmìng*) 'keep (one's life)' in (7), because logically a non-adverse VP would be adverse when negated (see Kuo 2016b for a review).

7.4.3 Slots in the schema

Only a few kinds of items occur in the ADVERB slot of the schema, such as *wéi*, *xiǎnxiē, zhēngxiē, chādiǎn*, most of which can be used as adjectival or verbal

predicates outside the schema. Items in the ADVERB slot can be categorised into two subtypes, 'danger' and 'proximity' adverbs, based on their lexical origins. The 'danger' subtype includes *wéi* and *xiǎnxiē*, as *wéi* and *xiǎn* outside the adverse avertive schema can be used referentially as nouns meaning 'danger' or predicatively as verbs 'endanger; threaten' or adjectives 'dangerous'. The 'proximity' subtype contains *zhēngxiē* and *chādiǎn*, as outside the schema they function as predicates meaning 'come close to; differ little from' (Shuai 2014; for a detailed description, see Kuo 2016b).

Wéi is the oldest item in the slot. As far as the corpora show, it has no variant form. For example,

(9) 五聘絕域危不脫

wǔ	pìn	juéyù	wēi	bù	tuō
five	serve.as.envoy	remote.place	AA	NEG	escape

'He served as an envoy in far-flung places five times. He almost could not escape.' *Xīntángshū* (1060)

Xiǎn(*xiē*)'s and *chādiǎn*'s variants vary on the basis of what degree modifiers follow *xiǎn* and *chā* (such degree modifiers are originally classifiers; see Kuo 2018 on their developments). However, *xiǎn* alone can also appear in the ADVERB slot (*chā* alone cannot). The modifiers, meaning 'slightly; a bit', are (*yī*)*xiē* and (*yī*)*diǎn*, both of which can take the diminutive suffix *–r*, while only (*yī*)*xiē* may take a general bare classifier *ge* 'one counting unit' (see Ch. 6 for more descriptions of *xiē*, *ge* and *diǎn* as classifiers). *Zhēngxiē*, similar to *chādiǎn*, does not occur alone in the ADVERB slot without any following modifier. *Xiē* in *zhēngxiē* is the same modifier as (*yī*)*xiē*; even though *zhēngxiē* does not take *yī* (**zhēngyīxiē*), it also takes *–r* or *ge* optionally.

The degree modifiers, *–r* and *ge* do not drastically alter the meaning; they emphasise the 'narrowness of escape' from some unfortunate event. Following are two examples, *chāyīxiēr* and *xiǎnyīdiǎnr*, whose formal complexity is particularly noteworthy not only within the schema, but also in the context of Chinese. The

shortest possible variants are respectively *chāxiē* and *xiǎn*, yet *chāyīxiēr* is two morphemes longer than *chāxiē* and *xiǎnyīdiǎnr*, three morphemes longer than *xiǎn*. Both *chāyīxiēr* and *xiǎnyīdiǎnr*, exemplified below, therefore display complex morphology in the otherwise (non-compounding) morphology-poor Chinese (Packard 2000).

(10) 差一些兒不曾壓死

chāyīxiēr	bù	céng	yā	sǐ
AA	not	ever	crush	die

'almost crushed (her) to death.' *Xǐngshì yīnyuán zhuán* (mid–late 17th c.)

(11) 險一點兒喊出來

xiǎnyīdiǎnr	hǎn	chūlái
AA	shout	out

'almost shouted out.'[9] *Yōngzhèng jiànxiá tú* (ca. 1928–1943)

Exactly how these degree modifiers, *–r* and *ge* became part of the adverbs and differences between the variants lie outside our focus.[10] The variants will be described as 'micro-constructions' of the adverse avertive, while the labels *xiǎnxiē*, *zhēngxiē* and *chādiǎn*, corresponding to the most frequent variants, represent 'subschemas', i.e. abstractions over micro-constructions. The following table summarises the subschemas and micro-constructions attested in the CCL corpus.

[9] Alternative translations that help convey the emphasis on 'narrowness of escape' can be: 'came *this* close to crushing her/shouting out', with special phonetic or gestural emphasis on *this*.

[10] See Kuo's (2016b) account of the adverse avertive's history, Kuo (2018) for degree modifiers *diǎn* and *xiē*, and Ch. 6 for a brief discussion of *xiē* + *ge*.

subschema	lexical origin	micro-construction(s)
	'danger; dangerous;	*wéi*[11]
xiǎnxiē	threaten'	*xiǎn*, *xiǎnxiē*, *xiǎnxiēr*, *xiǎnxiēge*, *xiǎnyīxiē*, *xiǎnyīxiēr*, *xiǎnyīdiǎn*, *xiǎnyīdiǎnr*
zhēngxiē	'come close to;	*zhēngxiē*, *zhēngxiēr*, *zhēngxiēge*
chādiǎn	differ little from'	*chādiǎn*, *chādiǎnr*, *chāyīdiǎn*, *chāyīdiǎnr*, *chāyīxiēr*

Table 7.3 The adverse avertive subschemas and micro-constructions

The two kinds of lexical origins of the subschemas and micro-constructions represent two alternative ways of expressing the adverse avertive meaning, respectively through the lexical meanings of 'danger' and 'proximity'. *Wéi* and *xiǎnxiē* focus on the event as something *dangerous* (similar to *be in danger of Ving*), while *zhēngxiē* and *chādiǎn* construe it as something close to happening (similar to *be on the verge of V*ing). The *xiǎnxiē*, *zhēngxiē* and *chādiǎn* subschemas may be viewed as horizontally linked to each other because they are on the same level of schematicity: below the level of the schema, they represent the three most schematic abstractions of formal and functional properties.[12]

Negators that can fill the NEG slot are, in chronological order: *bù* 'not', *bù céng* 'not ever', *méi* and *méiyǒu* 'have not'. Of all the negators, *méi* and *méiyǒu* are the 'best fit' for the schema. The event referred to by the schema is typically perfective: being on the verge of doing something adverse entails a certain endpoint beyond which something adverse will be done. *Méi* and *méiyǒu* typically negate perfective predicates (i.e. they deny more specifically the endpoint of an event), so they are more compatible with the schema semantically. On the other

[11] No *wéi* subschema is proposed because *wéi* does not have any variant in the corpus.
[12] The *wéi* micro-construction declined before any instance of the *zhēngxiē* and *chādiǎn* subschemas arose. Therefore, it would be anachronistic to consider it as horizontally linked to the other ones. For more specific dates, see Kuo (2016b).

hand, *bù* typically denies imperfective predicates and may be vague with respect to the completion of an event (Li & Thompson 1981: Ch. 12); therefore, it is less compatible with the schema.[13] When *bù* in the schema was first attested (ca. 7th c.; see 12), *méi* and *méiyǒu* had not begun being used as negators; according to Xu (2003) they entered the standard negation system in the 13th century. However, even after *méi* and *méiyǒu* became widely used, the NEG slot still retained the possibility of being filled by *bù* and *bù céng* (Shuai 2014; Kuo 2016b). This again indicates the schema's non-compositionality and the fact that users must have had an independent mental representation of the schema: they did not respond to wider systematic change in negation immediately by using the negators that are in hindsight, the 'best fit' with the schema.[14]

Possible functional nuances have been overlooked here (e.g. genre-specific or dialectal preferences, discourse properties, etc.). One might ask how micro-constructions differ from each other functionally, or whether they prefer any particular negator and why. These questions are not addressed here. As outlined in §7.2, the focus is on higher-level generalisations, and it is proposed here that differences between the variants lie below the level of abstraction we are interested in. That is, to explain one aspect of the schema's obsolescence, we can look at subschemas such as *xiǎnxiē, zhēngxiē,* and *chādiǎn*, which abstracts over functional nuances in micro-constructions. Of course, this does not rule out other possible explanations (especially language-external ones) as to why the schema obsolesced.

[13] When discussing expletive negation in the adverse avertive schema, Ziegeler (2006: 191) notes that "in none of the examples of expletive negation in the literature on Chinese is there the possibility of the expletive negative form being *bù*… it seems highly likely that expletive negation will not occur with imperfective predicates [hence not with *bù*; YHK]". This generalisation may be true synchronically, but not diachronically, as *bù* could occur in the schema in Pre-PDC.

[14] See Jiang (2008) for expletive negation in Chinese, including the adverse avertive, or Kuo (2016b) for a review.

7.5 The demise of the adverse avertive schema

The schema has been lost in PDC. §7.5.1 considers qualitative criteria. §7.5.2 focuses on reduction in frequency. §7.5.3 proposes that the demise of the schema can be related to the change in 'prototypicality', or 'constructional meaning supply'—the older supplier, *xiǎnxiē*, was a good match with the schema's form and meaning, while the new one, *chādiǎn*, was not, in terms of semantics and pragmatics, thereby unable to maintain the schema's composition properly. §7.5.4 summarises by visualising the process.

7.5.1 Qualitative aspects

The schema's schematicity has reduced to almost nil: *chādiǎn* is arguably the sole surviving 'descendant' (not 'member') of the schema. The function of expletive negation in the schema has also become so opaque in PDC that it has inspired quite some discussion (Kuo 2016b), i.e. its compositionality has decreased. §7.5.2 discusses productivity in more detail. The qualitative changes that *chādiǎn* has gone through are the focus of this section.

The decreased compositionality is most evident in the confusion over how to parse the sequence *chādiǎn* + *méi*(*yǒu*) (also recall here that *chādiǎn* here represents an abstraction over variant forms; see Table 7.3). As described in §7.4.2, the status of the negator can be distinguished by whether the following VP is adverse or not. However, Kuo (2016a, b) remarks that this distinction only holds diachronically. Biq (1989) demonstrates with the following two examples that no adversity is necessarily associated with the adverse avertive synchronically.

(12) 他高興的差一點沒把他母親抱起來

tā	gāoxìngde	chāyīdiǎn	méi	bǎ	tā	mǔqīn	bào	qǐlái
3SG	happily	AA	NEG	BA	3SG	mother	hug	up

'He was so happy that he almost lifted his mother up.'

(13) 差一點沒跟她握手

chāyīdiǎn	méi	gēn	tā	wò	shǒu
AA	NEG	with	3SG	shake	hand

'(I) almost shook hands with her (Princess Diana).' based on Biq (1989: 79)

Furthermore, Zhou (2003) shows that the sequence *chādiǎn* + *méi*(*yǒu*) is inherently ambiguous: in PDC *méi*(*yǒu*) can be either an expletive or canonical negator, regardless of the following VP. This suggests that PDC no longer has the adverse avertive schema. While the adverse feature previously constrained the interpretation of the negator (see (7) and (8)), its loss creates ambiguity in the PDC sequence *chādiǎn* + *méi*(*yǒu*).

Kuo (2016a) proposes that (12) and (13) are possible in PDC because, first, the adverse feature in *chādiǎn* + *méi*(*yǒu*) has been lost due to bleaching, and second, *chādiǎn* + *méi*(*yǒu*) have fused together. This bleaching is also a case of generalisation, whereby the number of features that characterise and constrain its functional range is reduced. The fusion, or boundary loss, is a kind of decrease in compositionality (cf. *a lot of* > *a lotta*; Traugott & Trousdale 2013). Kuo's evidence comes from the fact that *chādiǎn* tended to be used hyperbolically in Pre-PDC (63% of the time), downplaying the adverse feature with its 'tongue-in-cheek' contextual meaning, and *chādiǎn* + *méi*(*yǒu*) co-occurred more frequently (51%, cf. *xiǎnxiē* + *méi*(*yǒu*)'s 7%. Their frequent co-occurrences by hypothesis encouraged them to fuse into *chādiǎnméi(yǒu)*. Examples where *chādiǎn* + *méi*(*yǒu*) was used hyperbolically typically modify extreme events involving 'death' (48%) and 'physical harm' (15%), such as (14) and (15).[15]

[15] Kuo (2016a) only collects data from the *Yuán* Dynasty to the Early Republic Era (labelled 'Premodern Chinese'). He only counts *chā*(*yī*)*diǎn*(*r*), but not any other variants, which is justified partially by the fact that *chā*(*yī*)*diǎn*(*r*) is the most frequent by far.

(14) 差一點沒喪了命

chàyīdiǎn	méi	sang	le	mìng
AA	NEG	lose	PFV	life

'(I) almost lost my life.'

(15) 差一點沒劈殺了哩

chàyīdiǎn	méi	pī	shā	le	lī
AA	NEG	hack	kill	PFV	FP

'(He) almost hacked him to death.' *Xǐngshì yīnyuán zhuán* (mid–late 17th c.)

Following bleaching, there is increased pragmatic ambiguity. Previously, the sequence NEG VP could be disambiguated by adversity (NEG VP had to be read as undesirable, so if VP was undesirable then NEG was expletive; if VP was not undesirable, then NEG was not expletive). But NEG VP now cannot be disambiguated by using adversity as a cue; pragmatics has now played an even more important role in disambiguating NEG VP. Therefore, there has been 'pragmatic strengthening' (Traugott 1988): the pragmatic inference that *chādiǎn* actually did not encode adversity has become more prominent, increasing the range of contexts in which *chādiǎn* can be used. There are thus both loss (bleaching) and gain (pragmatic strengthening; see Sweetser 1988; Brems 2011).

The loss of adversity/pragmatic strengthening is not unique to the adverse avertive. The Chinese passive was used only when adversity was involved, but this constraint has been lifted (e.g. Chao 1968; see Chappell 1986 for different views). The comparable *threaten*-verb in Spanish, *amenazar*, has also shown signs of 'bleaching': Cornillie (2004: 27) observes that it "may also defocus the evaluation dimension" (i.e. the adversity meaning). For example,

(16) … una tenue brisa amenazaba con convertirse en un viento mas ligero

'… a persistent breeze threatened to become a lighter wind.'

Cornillie (2004: 28)

Taking into the wider context of (16), he notes that in the example "two birds are swimming in a strong stream; in the background a breeze is about to change to a lighter wind, which cannot be viewed as negative" (Cornillie 2004: 28).

Henceforth, with respect to their synchronic statuses, *chādiǎn* and *chādiǎnméi(yǒu)* will be referred to as *chādiǎnméi(yǒu)*, while *chādiǎn* is used to label the pre-PDC adverse avertive subschema. *Chādiǎnméi(yǒu)* is not an instance of the adverse avertive schema, as neither the whole bundle of adverse avertive features nor the NEG slot has survived in it. *Chādiǎnméi(yǒu)* is a new construction, more general than *chādiǎn*. Note that this may evoke the Sorites Paradox: how many grains of sand have to be removed from a heap before it is no longer a heap? Or, how different does a construction have to be in order to be considered as a dead (or new) construction?[16] This chapter's position is that the adversity feature no longer characterises *chādiǎnméi(yǒu*) and its NEG slot is non-existent— *méi*(*yǒu*) in *chādiǎnméi(yǒu)* is fixed and fused— so it has form and meaning different from its ancestor *chādiǎn*, despite shared genealogy. Much scholarly discussion inspired by the synchronic opacity of *chādiǎnméi(yǒu)* in PDC arguably reflects the fact that *chādiǎn* and *chādiǎnméi(yǒu)* are two different constructions: even linguists, if without any diachronic knowledge of *chādiǎn* and *chādiǎnméi(yǒu*), would not be able to know that *chādiǎn* has come to be fused with *méi*(*yǒu*) and lose the adversity feature (for a brief review of the scholarly interest in *chādiǎnméi(yǒu)*, see Biq 1989; Kuo 2016b).

Finally, the development of *chādiǎnméi(yǒu)* out of *chādiǎn* is also a case of 'extended grammaticalisation' in the sense of Breban (2015), which essentially boils down to semantic/pragmatic widening without change in syntactic category (see also Ch. 3). *Chādiǎnméi(yǒu)* is not as pragmatically constrained or specialised as *chādiǎn*, but the structural relation between *chādiǎnméi(yǒu)* and other linguistic units remains the same; it is still adverbial and preverbal. The only formal change is the construction-internal univerbation of *chādiǎn* in the ADVERB slot and *méi*(*yǒu*)

[16] This is a general issue about change: it can be difficult to determine when one thing ends and another begins (the Sorites Paradox; Ch. 2.4.1).

in the NEG slot. Zooming outside *chādiǎnméi(yǒu)* and its ancestral 'mother', i.e. the adverse avertive schema, we can notice that *chādiǎnméi(yǒu)* has also realigned to an adverbial adjunct schema more schematic than the adverse avertive: [ADVERB VP]. This schema contains no NEG slot and is not as functionally specified as the adverse avertive: adverbial constructions sanctioned by it are not only found in contexts of adversity. A micro-construction that exemplifies this general adverbial schema is [*jīhū* VP] 'almost V; be close to Ving' (see Peyraube 1979 for more discussion regarding the distinction between *jīhū* and *chādiǎnméi(yǒu)*).

In sum, the adverse avertive schema has obsolesced and its surviving descendant, *chādiǎnméi(yǒu*) has formal and functional features that distinguish it from the ancestral adverse avertive schema. *Chādiǎnméi(yǒu*) thus rose out of the obsolete adverse avertive schema and aligned to the general adverbial schema, for which, the constructionalisation of *chādiǎnméi(yǒu*) constitutes an increase in productivity. Therefore, there are changes at different levels: *chādiǎnméi(yǒu*), adverse avertive schema, and the general adverbial schema that is even more schematic than the adverse avertive schema. This is where constructionalisation, pre- and post-constructionalisation constructional change become difficult to distinguish. The adverse avertive schema's post-constructionalisation constructional change (its obsolescence) and *chādiǎnméi(yǒu*)'s pre-constructionalisation constructional change and constructionalisation are interrelated (see also Ch. 3.4). In other words, constructionalisation and constructional changes may be difficult to separate across levels of abstraction.[17]

7.5.2 Quantitative aspects

Type productivity of the schema has been severely reduced: neither the subschema *zhēngxiē* nor its micro-constructions exist in PDC. In the Sinica Corpus, all 24 instances of the subschema *xiǎnxiē* are confined to written registers, none of which occurs with any negator, expletive or canonical. This also suggests that the NEG slot

[17] I am grateful to Elizabeth C. Traugott for pointing this out to me.

and the schema have become defunct. Users presumably do not have a mental representation of the schema; they might even not recognise *chādiǎnméi(yǒu)* and *xiǎnxiē* as related. *Xiǎnxiē* therefore resembles *methinks* in that both are historical relics from previously productive schemas.[18] Productivity at a lower level has also reduced: while there was a wide range of micro-constructions (see Table 7.3), in PDC only *chā*(*yī*)*diǎn*(*r*) is attested while there are 23 constructs of *xiǎnxiē* and one of *xiǎndiǎn*.

To describe the overall trajectory, Figure 7.1 visualises the frequency of the schema, represented by the subschemas *xiǎnxiē*, *zhēngxiē* and *chādiǎn* from the *Yuán* Dynasty (1271–1368) to the Republic Era (1911–1949) in the CCL Corpus.[19] Tokens of *xiǎnxiē*, *zhēngxiē* and *chādiǎn* in each period were extracted, counted and added together. Their frequency per one million character in each period was then calculated (see §7.4.1 and Footnote 6 for data sources and the number of characters in each period).

[18] According to my own personal observation reading Taiwanese news headlines, *xiǎn* (but not *xiǎnxiē* or any other variants) seems to have gained in popularity in Taiwanese journalese recently, which may be because *xiǎn* fills in a particular functional niche in journalese that prefers efficiency: *xiǎn* is short, being monosyllabic, yet expresses quite elaborate information (compare *chādiǎnméi(yǒu)*, which does not have a monosyllabic variant, therefore is always lengthier than *xiǎn*, yet not as elaborate semantically as *xiǎn* in that *chādiǎnméi(yǒu)* has lost the adversity feature). This presumably recent surge in popularity is not captured in the Sinica Corpus of PDC, which only includes data up to 2007. Following §7.2, *xiǎn*'s new association with journalese may qualify it as a new construction, therefore outside the purview of 'loss'. Note also that *xiǎn* in Taiwanese journalese never occurs with any expletive negator; this is formal evidence that it is not an instance of the adverse avertive schema anymore.

[19] *Wéi* was rare by *Yuán*, therefore not included here.

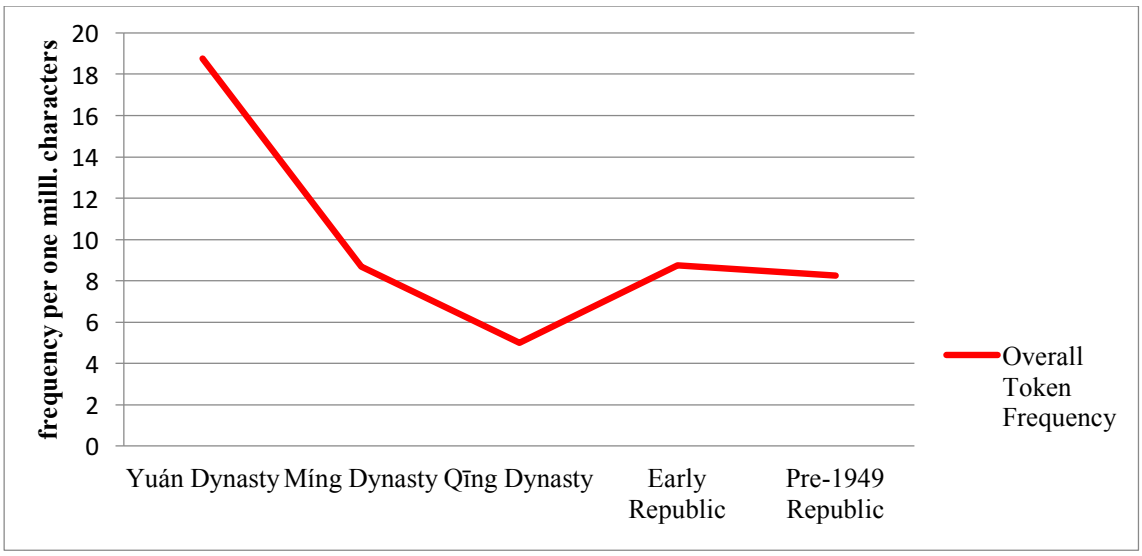

Figure 7.1 Relativised token frequency of the schema per one million characters

Figure 7.1 is puzzling: it looks like the schema has not plunged to its death, but rose and plateaued after the *Qīng* Dynasty. However, if we look at the individual subschemas, a different story emerges. Figure 7.2 represents the frequency of each subschema making up Figure 7.1.

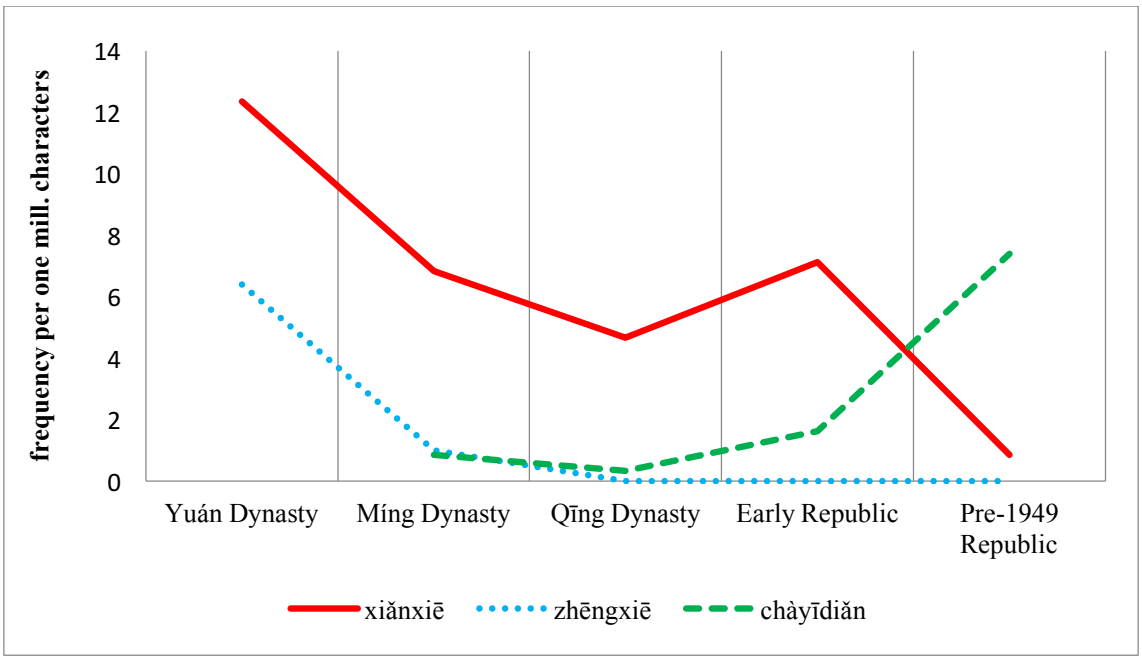

Figure 7.2 Relativised frequency of the adverbs per one million characters

Figure 7.2 shows that *zhēngxiē* disappeared after the *Míng* Dynasty, *xiǎnxiē* has almost disappeared, and *chādiǎn* started gaining ground on *xiǎnxiē* after the *Qīng* Dynasty and has been rising. The 'plateau' in Figure 7.1 could be attributed to *chādiǎn*'s rise. Figure 7.2 also reveals an important fact: before *chādiǎn* 'usurped' the unique status of being the most frequent schema member, *xiǎnxiē* was the most frequent one. This begs the question: 'what kind of impact did it have on the schema'?

Additionally, even though by PDC the schema has obsolesced, *chādiǎn*'s descendant in PDC, *chādiǎnméi(yǒu)* is thriving, as Figure 7.3 shows, which contains additional data from PDC.

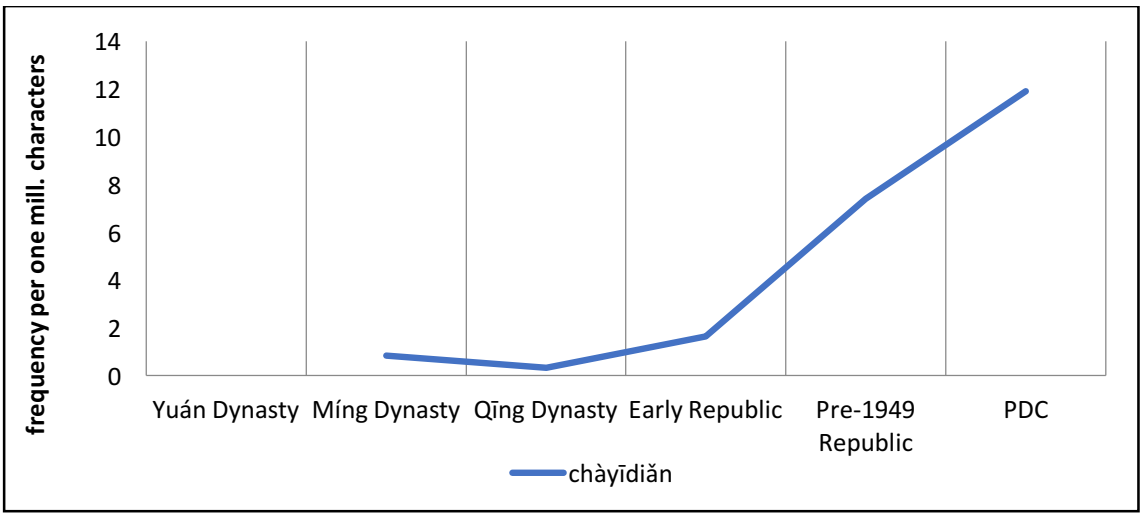

Figure 7.3 Relativised frequency of chādiǎn/chādiǎnméi(yǒu) per one million characters

Figure 7.3 poses the question 'why does *chādiǎn*/*chādiǎnméi*(*yǒu*) seem to have an overall upward trajectory while in PDC its form and function warrants a different constructional status and the schema is obsolete'? §7.5.3 attempts to provide some answers.

7.5.3 The demise of the schema: from 'danger' to 'proximity'

In §7.4.3 the adverbs in the schema are categorised into two subtypes on the basis of their original semantics: *wéi* and *xiǎnxiē* are the 'danger' subtype and *zhēngxiē* and *chādiǎn* are the 'proximity' subtype. Building on the role that the most prototypical member plays in a schema (§7.3), this section proposes that the erosion of the schema can be related to its change in 'prototypicality' or 'constructional meaning supply', from 'danger' to 'proximity', as the former motivated the schema but the latter demotivated it (this accounts for the obsolescence of the schema, while *chādiǎn*/*chādiǎnméi*(*yǒu*)'s upward trajectory in Figure 7.3 is to be explained later).

The 'danger' subtype has a natural association with the schema. *Wéi*, literally 'danger; dangerous; threaten', established the schema and *xiǎnxiē*, with a

similar lexical semantics, emerged after *wéi*. In terms of meaning, *wéi* and *xiǎnxiē*, like *threaten*-verbs, encode adversity, which is directly related to their original lexical semantics. In terms of form, the crosslinguistic use of expletive negation in proximative expressions has been hypothesised to be motivated by adversity as well, such as in Spanish, Portuguese, Bulgarian and Polish (see Ziegeler 2016 for an overview). That is, the form and meaning of the schema are motivated by the lexical semantics of *wéi* and *xiǎnxiē* because it encodes notions of 'danger'. They are good 'cognitive anchors' that guide users to learn the schema.

The original semantics of the 'proximity' subtype such as *zhēngxiē* and *chādiǎn,* 'come close to; differ little from', however, is not directly related to 'danger' and does not 'cue' the form and function of the schema as easily. That is, the lexical source of the 'proximity' subtype is not a good fit, but more opaque with respect to the schema, whereas the schema's meaning could be easily 'read off' from the 'danger' subtype, which also motivates its formal feature of expletive negation.

Hearing a 'danger' adverb construct may strengthen the mental representation of the schema or prime the schema, as 'danger' has a strong association with it, while hearing a 'proximity' adverb construct may not strengthen or prime it as much. Assuming frequency may determine the source of 'prototypicality' or 'meaning supply' in a schema, in the Pre-1949 Republic Era, the constructional meaning supply of the schema changed: previously the 'danger' subtype, represented by *xiǎnxiē* (and before it, *wéi*) had been the source but then the 'proximity' subtype, represented by *chādiǎn*, took over. This change motivated the breakdown of the schema: while the supply provided by the 'danger' subtype could easily maintain the schema by encouraging associations between 'danger' and both the meaning of 'adversity' and the form of 'expletive negation' in the schema, the supply from the 'proximity' subtype was not as capable of maintaining such associations. Even though frequency and prototypicality might not align perfectly, the hindsight from *chādiǎnméi*(*yǒu*) justifies positing *chādiǎn* to be the younger meaning supplier while *xiǎnxiē* is the older one: the fact that

chādiǎnméi(*yǒu*) has been bleached suggests that the schema's adversity meaning constraint must have been loosening, as *xiǎnxiē* receded and *chādiǎn* started to bleach in its absence.

However, the demotivating effect *chādiǎn*'s original semantics had on the schema should not be the only factor. In fact, despite the imperfect match between *chādiǎn* and the schema, in principle *chādiǎn* should still be able to express adversity as its constructional meaning after it became the meaning supplier. After all, *chādiǎn* and *zhēngxiē*, though not transparently related to 'danger', were historically members of the schema and could express adversity. In addition, it is not necessary that everything in the schema should hinge upon the ADVERB slot. As described above, crosslinguistically expletive negation can 'cue' adversity. In short, the question is: to what extent can we 'blame' the schema's obsolescence on the lack of adversity in *chādiǎn*'s original lexical semantics, given that it was actually an instance of the schema for much of its history and expletive negation could be regarded as a source of supply of adversity as well?

The original lexical semantics of *chādiǎn* is a more abstract generalisation, but it is also important to consider its usages in context. After all, from the perspective of a usage-based framework like diachronic construction grammar, change must originate in constructs. As described in §7.5.1, *chādiǎn* tended to be used hyperbolically, which is a significant deviation from the schema's meaning of adversity. Once the construct-level tendency towards hyperbole became entrenched and recognised as a pragmatic aspect of the subschema *chādiǎn*, the association between *chādiǎn* and the schema deteriorated. The looser connection between the schema and the 'proximity' subtype's semantics already does not encourage strongly the latter to be categorised as an instance of the former, so the hyperbolic pragmatics of *chādiǎn* further discourages such a categorisation. That is, the original lexical semantics of *chādiǎn* alone did not seal the schema's fate; its pragmatics also contributed. Both *chādiǎn*'s semantics and pragmatics resulted in a constructional meaning supply that provided no proper 'cognitive anchoring' with

respect to the schema. Nevertheless, the semantics must have also motivated its pragmatics: the lack of inherent adversity lent it easily to hyperbole.

Having interpreted the obsolescence of the schema in terms of constructional meaning supply, we can consider the second question raised in §7.5.2: *chādiǎn*/*chādiǎnméi*(*yǒu*) has been on the rise, while the schema has obsolesced. The tendency of users using *chādiǎn* hyperbolically probably encouraged its use and crowded out *xiǎnxiē.* That is, there was a schema-internal competition between them: users had two competing ways of expressing the adverse avertive meaning. It was very likely a scenario similar to Haspelmath's (1999) 'extravagance' account of grammaticalisation: Users found *chādiǎn* more attention-grabbing than *xiǎnxiē*, therefore used it more. The sharp increase in *chādiǎn*'s frequency and the steep decline of *xiǎnxiē* in the Pre-1949 Republic Era might reflect this: *chādiǎn* reached a critical point where it quickly gained ground on *xiǎnxiē*, on the strength of its much more sensational contextual meaning. Assuming that expletive negation is more 'intersubjective', in that it signals more explicitly "the emotional impact on the addressee of uttering a statement about closeness to misfortune" (Ziegeler 2016: 19; see §7.4.2), the higher co-occurrence rate of *chādiǎn* + *méi*(*yǒu*) (51%) than that of *xiǎnxiē* + *méi*(*yǒu*) (7%), reported by Kuo (2016a), also suggests that *chādiǎn* is more 'extravagant'; it highlights the idea of 'narrowness of escape' from some unfortunate event that the adverse avertive encodes. Micro-constructions such as *xiǎnyīdiǎnr* and *chāyīxiēr* (see Table 7.3 in §7.4.2) also suggest that 'extravagance' characterised the schema: users created those formally elaborate forms to impart a much more 'emphatic' or even 'sensational' meaning than their much shorter counterparts (e.g. *xiǎn* and *chāxiē*). *Chādiǎn*, or rather its extension, *chādiǎnméi*(*yǒu*), probably also owes much of its growth to its sensational nature and versatility, unconstrained by any constructional adversity feature. This usage preference for *chādiǎn* over *xiǎnxiē*', or the 'in-fighting' between sibling subschemas, is likely to have had a hand in the declining vitality of the parent schema, too: with *xiǎnxiē* deteriorating, the likelihood of any

association between the schema and ‘danger’, thus adversity and expletive negation, dwindled.

7.5.4 Summary: a visualisation of the process

Before 1949, both frequency and functional evidence suggest that the ‘danger’ subtype was the constructional meaning supplier: it was the most frequent and its meaning closely corresponded to the schema’s (§7.3.1–2). The schema’s form (the NEG slot) and meaning were motivated by the supplier’s semantics of ‘danger’. Therefore, a ‘good fit’ could be posited between the schema and supplier: the lexical semantics of the supplier matched its constructional meaning as well as that of the schema, and the constructional meaning motivated the NEG slot. The ‘proximity’ subtype, such as *zhēngxiē* and *chādiǎn* also emerged; the adversity it expressed was attributed to the constructional meaning of the schema, as its semantics, unlike ‘danger’, did not directly motivate adversity. This initial stage is represented in Figure 7.4, where CM, LS and EN stands for ‘constructional meaning’, ‘lexical semantics’ and ‘expletive negation’ respectively. The boxes representing the schema and *xiǎnxiē* are dotted to symbolise that the latter supplies the former with meaning.

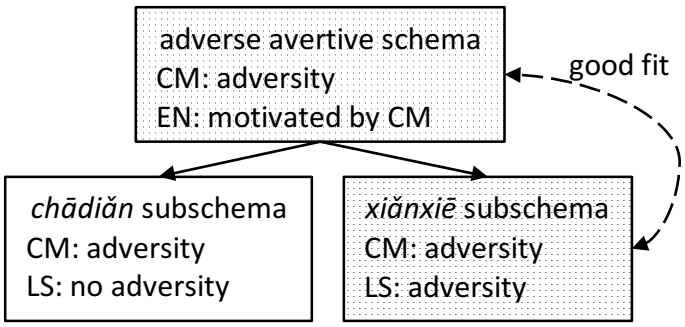

Figure 7.4 Initial stage

The lack of inherent adversity in the proximity subtype such as *chādiǎn* encouraged it to be used hyperbolically and begin being disassociated from the

constructional meaning of adversity. However, the supply of 'danger' constrained the disassociation. *Xiǎnxiē* reined in *chādiǎn*'s extension to non-adverse contexts in that it imposed the adversity meaning on the schema and its members. This kind of schema-level effects, ultimately emanating from *xiǎnxiē*, has been called "backward pull" (Petré 2012: 42), "pull-back effects" (Traugott & Trousdale 2013: 227–228), or identified as cases of persistence (e.g. Breban 2009; see De Smet et al. 2018: 219–220 for a brief review; Ch. 3.5). This is represented in Figure 7.5, where *xiǎnxiē* reined in *chādiǎn*'s extension to non-adverse contexts, while *chādiǎn*'s lexical semantics motivates hyperbolic uses. The downward dotted line symbolises the schema-level constraint imposed on the *chādiǎn* subschema, while the upward dotted line sympoblises the supply of the meaning of 'danger' to the schema from the *xiǎnxiē* subschema.

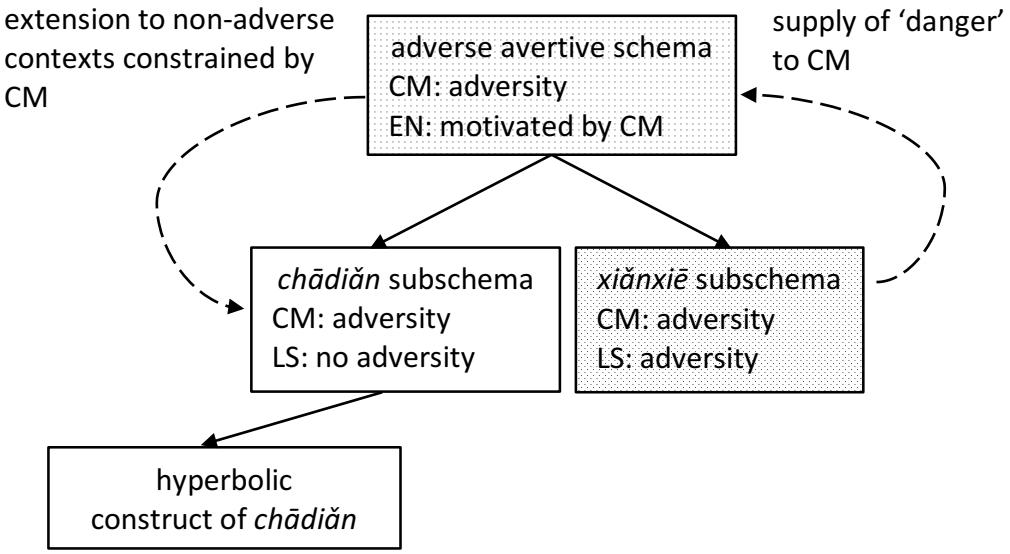

Figure 7.5 Hyperbolic uses of *chādiǎn*

Repeated hyperbolic uses led to the incorporation of hyperbolic pragmatics into *chādiǎn*. That *chādiǎn* was inherently adversity-free and gravitated toward hyperbole further encouraged its frequent uses, thus gradually ousting the reigning 'danger' adverb, *xiǎnxiē* in a 'extravagance'-style competition. As *xiǎnxiē* decreased

in frequency and lost the status of meaning supplier to *chādiǎn*, the adversity constraint, or the association between the schema and adversity, eroded. Users oriented themselves towards *chādiǎn* in building up the schema, but the meaning supply or cognitive anchoring it provided was different from that of *xiǎnxiē* in terms of both semantics and pragmatics. That is, there was a 'bad fit' between *chādiǎn* and the schema because the former's semantics and pragmatics did not motivate the latter's adversity feature and expletive negation. This is represented in Figure 7.6, where PG stands for 'pragmatics' and the question mark symbolises that the adversity feature was eroding. The dashed lines suggest increasing disassociations between *xiǎnxiē* and the schema. Figure 7.6 represents a hypothetical stage later than the one represented by Figure 7.5.

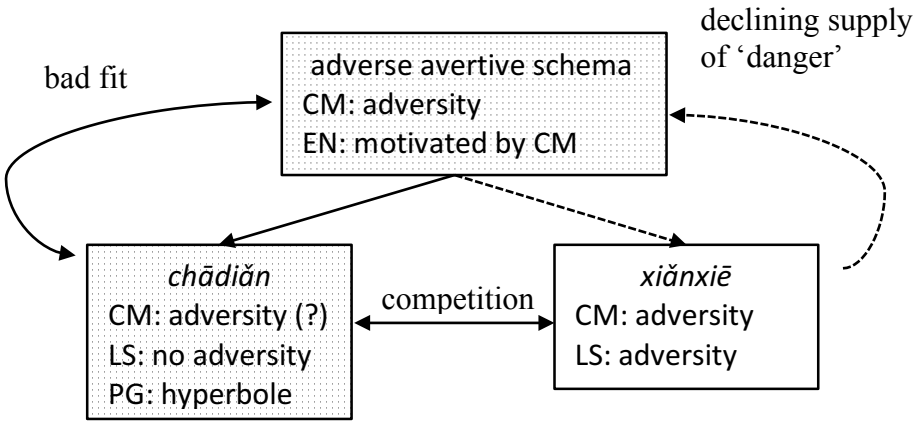

Figure 7.6 Bad fit between the schema and *chādiǎn*

The analysis presented here can be refined or falsified by collostructional analysis that measures attraction between constructions (Stefanowitsch & Gries 2003; Gries & Stefanowitsch 2004). If it is correct, it is predicted that 'danger' adverbs are more attracted to the schema than 'proximity' adverbs for most of the schema's history. Furthermore, if as constructional meaning suppliers 'danger' adverbs strengthen associations with the schema more than 'proximity' adverbs do, they should also prime the schema more (see Rosemeyer 2014, Torres Cacoullos

2015, and De Smet & Van de Velde 2017 for using priming in historical studies). This means that it should be more likely to find constructs of the schema (whether the 'danger' or 'proximity' kind) following 'danger' adverbs than following 'proximity' adverbs. Diachronically, the priming effect of 'danger' adverbs on 'proximity' adverbs should decline, as 'proximity' adverbs break loose from the schema. However, in PDC, if the schema is really obsolete, they should not prime each other, or at least not as strongly.[20]

7.6 Generalisation as loss

A brief comparison is made here to suggest that generalisation can be associated with loss. In diachronic construction grammar, as well as historical linguistics in general, at least three loss-related processes have been recognised. First, renewal (Hopper & Traugott 2003), whereby a newer construction comes to express the meaning of an obsolescent construction. Periphrastic future replacing morphological future is one commonly cited example (Rosemeyer 2014; see also Barðdal & Gildea 2015: 38–41 for renewal in diachronic construction grammar and Reinöhl & Himmelmann 2017 for a critique). Second, 'degeneracy' (Van de Velde 2014), which happens when a pre-existing construction (not a 'new' construction', as in renewal) comes to express the meaning of an obsolescent construction. For example, the English impersonal, typically used to signal the Experiencer construction, has come to be coded by the transitive construction, which co-existed with the impersonal but has taken over its function (see Trousdale 2008). Finally, 'Exaptation', or 'refunctionalisation' (Norde & Trousdale 2016) describes the process by which an obsolescent construction is recruited to a different schema and expresses novel meaning. For example, Norde & Trousdale (2016) argue that the genitive *–s* in Swedish, previously restricted to certain declensions of nouns, is now sanctioned by the determiner schema (see also Trousdale & Norde 2013).

[20] Methodological limitations make this investigation difficult to carry out. The CCL Corpus only shows a handful of (sometimes arbitrarily selected) passages along with the one within which a search item appears, while the Sinica Corpus provides only two, one preceding and the other following.

The history of the adverse avertive involves generalisation (the bleaching of adversity) and loss, but not any of the three processes. Chinese has had no comparable schema with the same bundle of functional features used to characterise the schema in §7.4.2, so there is no renewal (no new construction expressing the adverse avertive meaning), or degeneracy (no pre-existing construction taking on the adverse avertive meaning). There is also no exaptation: the descendent *chādiǎnméi(yǒu)* is not aligned to a different schema, nor does it express 'novel' meaning. It is sanctioned by the general adverbial adjunct schema, whose form includes no expletive negation slot and meaning is not constrained by adversity (see §7.4.3). This suggests that 'generalisation', without 'renewal', 'degeneracy' or 'exaptation' can be associated with loss as well. Of course, not every case of 'generalisation' (or 'semantic widening') need be a case of loss. Throughout this chapter, 'loss' is intended more specifically as 'schema loss', which crucially involves both form and meaning. Textbook examples of generalisation in the domain of lexical semantics (e.g. *hoover* 'a specific brand of vacuum cleaner' > 'vacuum cleaner') would not fall under what is meant by loss in this chapter.

It should be noted that even though there is no construction conventionalised for the expression of the adverse avertive, this does not mean that PDC speakers cannot express the adverse avertive meaning. Instead, 'conventionalised' is the operative word here: users may still express the same meaning, not through *one conventionalised construction*, but *multiple constructions* that are not conventionalised for the function, or they may leave it derived contextually. For example, *chādiǎnméi(yǒu)* can still imply adversity; it just no longer has a conventionalised adversity feature. Similarly, if the category *dual* has been lost in a language, it does not mean that its users have no access to the expression or mental representation of 'two entities'; they may still express it lexically, using the numeral for 'two' or a quantifying construction like '*a pair of*', or let it be inferred.

7.7 Conclusion

The kind of loss under investigation was defined as 'schema loss' in diachronic construction grammar. The analysis of the demise of the adverse avertive schema drew on the construction grammar proposal that the most prototypical member of a schema motivates the schema's formation, or supplies it with meaning. It was proposed that change in prototypicality, or constructional meaning supply in the adverse avertive schema demotivated the schema, leading to its loss. The meaning supply from the newer most prototypical member, *chādiǎn* differed from its predecessor *xiǎnxiē* in that its lexical semantics and pragmatics are not transparently 'adverse'. *Chādiǎn* thus provided a supply that did not help maintain the schema. Future research using collostructional analysis or priming may refine or falsify the analysis. Finally, it was suggested that generalisation can be associated with loss, independently of other loss-related processes widely recognised in the literature.

This chapter highlights that loss can be multidimensional: the substantive (e.g. constructs of *chādiǎn*) and partially schematic (the subschemas *xiǎnxiē* and *chādiǎn*) interact with the schematic (both the whole and parts, e.g. the schema and the NEG slot). Moreover, the co-occurrence of growth and loss can be observed by considering constructions at different levels. Figure 7.6 shows that the birth of *chādiǎnméi(yǒu)* out of *chādiǎnméi* is situated within the context of the taxonomic network, where *chādiǎnméi*'s sibling, *xiǎnxiē*, and its parent, the adverse avertive schema decline. These different levels of schematicity have to be considered to arrive at a holistic account of loss (or perhaps most kinds of 'growth', too, if not all; see Ch. 6), and a linear representation (e.g. Givón's 1979 cline in §7.1), whether one cuts it up into 'primary' and 'secondary' grammaticalisation, fails short of capturing what happens at different levels.

Finally, schema formation is not restricted to procedural or contentful constructions (e.g. Traugott & Trousdale 2013). Therefore, the prototypicality-based account of schema loss presented here can potentially be applied to more

contentful constructions as well. This, again, suggests that there is no unique late-stage process.

Chapter 8

Conclusions

8.1 Introduction

This thesis has shown that grammatical change that is not unidirectional can be modelled in a principled manner in the constructionalisation framework (Traugott & Trousdale 2013) and that a multidimensional view that considers both substantive and schematic patterns is essential to an accurate understanding of grammatical change, whether it involves grammaticalisation or not. It has argued that 'secondary grammaticalisation' is not a viable concept in modelling change because it does not make novel predictions and that there is no meaningful distinction between 'early-stage' and 'late-stage' grammatical change (the latter refers to the creation of grammatical constructions out of pre-existing grammatical constructions). Three major generalisations are also proposed: the performative bidirectionality prediction, the typology of reinforcement and the prototypicality-based account of obsolescence.

This brief chapter summarises in §8.2 the evidence and analysis presented in the previous chapters. Building on §8.2, §8.3 suggests that any important generalisation in language change such as directionality is likely to be found only by adopting a 'construction-specific' and 'process-oriented' view. §8.4 concludes by considering future directions.

8.2 Chapter summaries

This section briefly summarises the findings and arguments in Chs. 3–7. Chs. 4–5, dealing with two sides of the same coin, are discussed together in §8.2.2. Chs. 6 and 7 are summarised respectively in §8.2.3 and §8.2.4.

8.2.1 Ch. 3: late-stage grammatical change and secondary grammaticalisation

Ch. 3 first reviews the literature on secondary grammaticalisation, currently the only tradition that has paid special attention to late-stage grammatical change. Some have observed that certain processes and/or types of changes correlate with secondary grammaticalisation, while others question whether secondary grammaticalisation really differs from primary grammaticalisation. The first half of Ch. 3 argues the former position is not tenable: no data suggest that primary and secondary grammaticalisation is qualitatively different or that one can be uniquely distinguished from the other by any process. Ch. 3 also proposes that a linear view on change typically implied by the concepts of primary and secondary grammaticalisation obscures important details of change. From a constructional perspective, such a linear view reduces constructions down to their semantic and/or morphosyntactic categories, when constructions themselves, especially ones with multiple sources, should be the theoretical primitives (e.g. Croft 2001). The second half of Ch. 3 evaluates Smirnova's (2016a, b) arguments for the validity of 'secondary grammaticalisation' in her constructional model. It is argued that her emphasis on the 'regularity' of secondary grammaticalisation pathways overlooks fine-grained details essential to a constructional framework, such as construction-specific effects of persistence. Moreover, her model makes incorrect predictions about constructional changes and schema loss: she explicitly builds 'increasing context restrictions' into her definition of constructionalisation (creation of a new construction), and 'decreasing context restrictions' into her definition of construction change, while both obsolescence and constructional change may involve increasing context restrictions. Subsequent chapters then examine some processes and types of change that elaborate on the arguments made in Ch. 3.

8.2.2 Chs. 4 and 5: bidirectionality between modality and conditionality

Ch. 4 describes and analyses the development of the modal construction [*bi* 'must' *p*] into the conditional connective construction [*bi* 'only if' *p*, *q*]. Ch. 5 presents an analysis of the development of the conditional connective construction [*fēi* 'unless'

p, *q*’] into a necessity modal construction [*fēi* ‘must’ *p*]. Both developments are ‘late stage’ in the sense that they started off as constructions that are already grammatical.

The immediate sources out of which the output constructions develop are indirect speech act constructions, [*bì* ‘must’ *p*, *then q*] ‘must *p*, then *q*’ and [*fēi* ‘unless’ *p*, *bù* X] ‘unless *p*, not X’. What motivates them to respectively develop into the conditional construction [*bì* ‘only if’ *p*, *q*] and the modal construction [*fēi* ‘must’ *p*] is ‘performative equivalence’: modal and conditional constructions can perform the same indirect speech act. [*bì* ‘must’ *p*, *then q*] (or [*fēi* ‘unless’ *p*, *bù* X]) when used to perform a speech act, may invite inferences of ‘only if *p*, *q*’ (or ‘must *p*’) that performs the same act. The following table sums up the input and output constructions involved in the changes.

Semantic evolution	*bì* ‘must’ > ‘only if’	*fēi* ‘unless’ > ‘must’
Initial stage	*bì* ‘must’ *p*, *then q* ‘must *p*, then *q*’	*fēi* ‘unless’ *p*, *bù* X ‘unless *p*, it is not X’
Intermediate stage	Indirect speech act construction [*bì* ‘must’ *p*, *then q*]	Indirect speech act construction [*fēi p*, *bù kě*]
End stage	[*bì* ‘only if’ *p*, *q*]	[*fēi* ‘must’ *p*]

Table 8.1 *Bì* and *fēi* in and out of modality and conditionality

The bidirectional developments are a type of ‘invited inferencing’: the ‘semanticisation’ of inferences. They are also cases of ‘grammaticalisation’ and ‘constructionalisation’ in the sense that a grammatical meaning that was originally implied in the source construction has come to the foreground and become semantic in the target construction. By interpreting the bidirectional developments between modal and conditional constructions as cases of invited inferencing, both chapters show that, at least in performativity-mediated changes involving modality

and conditionality, late-stage developments are not characterised by any unique process: invited inferencing is commonly found in various stages of grammatical development.

'Bidirectionality' between modality and conditionality does not mean that no generalisation other than 'invited inferencing' can be proposed. The performative bidirectionality prediction is hypothesised to account for any bidirectional shift involving performativity. The prediction is composed of two parts: bidirectional inferencing and bidirectional categorisation. Potentially universal in the sense that it may apply in every language (similar to 'invited inference' in Traugott & Dasher 2002: Ch. 1.2.3), bidirectional inferencing proposes that when two constructions are performatively equivalent, they may invite inferences of the semantics of each other's 'profile equivalents' (i.e. 'heads'; Croft 2001). Bidirectional categorisation posits that if the profile equivalents are not highly differentiated morphosyntactically within a language's constructicon, the two constructions may acquire the semantics of each other's profile equivalents. In the case of Chinese, it lacks constructional slots within which modals and conditional connectives are consistently differentiated. The prediction is stated in detail below:

The performative bidirectionality prediction:

Given semantics X_{sem} in Construction X_{con}, where X_{sem} is the profile equivalent
and
semantics Y_{sem} in Construction Y_{con}, where Y_{sem} is the profile equivalent,

Bidirectionality is possible if the following two conditions are met:

Bidirectional inferencing:

The same performative meaning P can be conventionally expressed
by X_{con} and Y_{con}
(so that X_{con} may invite inferences of Y_{sem} and Y_{con} may invite those of X_{sem})

Bidirectional categorisation:

There is no consistently clear formal differentiation between categories encoding X_{sem} and Y_{sem}

(so that X_{con} may semanticise Y_{sem} and Y_{con} may semanticise X_{sem}, i.e. $X_{sem} > Y_{sem}$ and $Y_{sem} > X_{sem}$ are possible)

Crucially, the prediction is not reductive: it incorporates notions of performativity and does not reduce either direction of change into its semantic or morphosyntactic category. The prediction also relies on language-specificity and the notion of 'constructicon' to explain bidirectional developments. As morphosyntactic coding of semantic categories is language-specific, bidirectionality is only possible in a language's constructicon where two semantic categories do not consistently appear in constructional slots that can distinguish one semantic category from the other. This suggests that to understand change in a language, a holistic view on its inventory of constructions, at varying degrees of schematicity, is essential: how a construct begins performing speech acts and turning into an indirect speech act construction, and how it is motivated by the language's constructicon to develop into a similar, performatively equivalent construction. A linear view on the data that equates undirectionality with regularity would only force one direction of change to be regarded as 'exceptional' or 'irregular', while cross-linguistic and Chinese-internal data suggest that both are regular.

Some alternative proposals, typically associated with late-stage processes, may help to preserve a linear view on the developments between modality and conditionality such as degrammaticalisation, textualisation, and insubordination, in that they may also account for one of the directions of change, while reserving the other a place in a traditional, unidirectional account of grammaticalisation. However, it is argued that neither of the proposals correctly reflects the regularity of both directions of change.

8.2.3 Ch. 6: from quantifier *xiē* 'some' to classifier (*yi*) *xiē* '(one) some'

Ch. 6 looks at the development of *xiē*, which is essentially a category change. Previously a quantifier, it has now developed into a classifier. It qualifies as a late-stage development because both quantifiers and classifiers are minor class members. However, it is argued that the development of *xiē* is not a case of grammaticalisation, let alone secondary grammaticalisation. Crucially, this non-grammaticalisation account of *xiē* relies on a multidimensional understanding of the classifier schema, which is composed of several subschemas such as the bare classifier and *yi* subschemas. The quantifier construction [*xiē* NP] is formally and functionally similar to the bare classifier subschema [CL NP], while *xiē* in either the quantifier slot in $[\text{QNT NP}]_{\text{QNT}}$ or the bare classifier slot in [CL NP] resembles the classifier slot in the *yi* subschema [*yi* CL NP]. The realignment of *xiē* therefore is an analogically motivated process that reconfigures the inheritance link of *xiē* from the quantifier schema to the classifier one, based on similarities between *xiē* in the quantifier schema and the classifier slots in the bare classifier and *yi* subschemas.

This realignment is not a case of grammaticalisation, as nothing has grammaticalised. The bare classifier and *yi* subschemas had already been established at the time of the realignment and the meaning of *xiē* in both the quantifier and classifier schemas has (for most speakers) remained constant before and after the realignment. What has changed is simply the inheritance link of *xiē*, which changes from one procedural schema (that of quantifiers) to another (that of classifiers). A unidirectional view would suggest that quantifier *xiē* is the 'grammaticalisation' source of classifier *xiē*, yet so far there has been no corroborating evidence that quantifiers can grammaticalise into classifiers in Chinese.

The realignment of *xiē* to the *yi* subschema created [*yi xiē* NP], a case of reinforcement whereby the output is formally lengthier than the input, yet does not involve any semantic change. Many have pointed out that other reinforcement phenomena involve grammaticalisation (most famously, Jespersen's Cycle; Lehmann 1995). However, the case of *xiē* does not. Therefore, the development of

xiē along with a survey of related cases of change inspires a typology of reinforcement: reinforcement by innovation and reinforcement by realignment. The former involves the grammaticalisation of a lexical item (e.g. in Jespersen's Cycle, *pas* 'step' in French became a negator 'not'), while the latter involves the realignment to a schema that is different, yet related to the original schema (e.g. *xiē*, originally from the quantifier schema, has realigned to the *yi* subschema, producing [*yi xiē* NP]). The two types are summarised below.

Reinforcement type	**Reinforcee's status**	**Reinforcer's change**	**Examples of reinforcement (source of reinforcer)**
by innovation	Grammatical (e.g. *ne* V)	from lexical to grammatical (e.g. *pas*)	*ne* V > *ne* V ***pas*** (*pas* 'step' > ***pas*** 'not')
			N-ʔ > N-ʔ**ŋ** (ŋie 'child' > -**ŋ** 'diminutive suffix')
by realignment	On a lexico-grammatical continuum (e.g. *xiē* NP)	unchanged; part of a schema (e.g. [*yi* CL NP])	*xiē* NP > ***yi*** *xiē* NP (the *yi* subschema [***yi*** cl np])
			feet > *feet**s*** (the plural –*s* schema [n***s***])

Table 8.2 Types of reinforcement

Reinforcement by realignment shows that reinforcement is not necessarily (primary or secondary) grammaticalisation, and emphasises the importance of a multidimensional view: explanations often reside at different levels of schematicity and cannot be easily reduced to a cline-like representation.

Finally, novel uses of *xiē* as a classifier are also considered, particularly instances where *xiē* means 'type; group' and displays countability (i.e. *yi xiē* 'one type' and *liǎng xiē* 'two types'). Such uses are semantically more contentful than their origin, classifier *xiē*, roughly equivalent to 'some', because the meaning of 'type' presupposes a classification taxonomy where entities may be distinguished

from one type to another and counted, while the original meaning of *xiē* is highly schematic, vague with respect to the mass vs. count distinction and uncountable. Therefore, novel uses of *xiē* suggest that there is no unidirectionality (i.e. unidirectional development towards 'grammatical/procedural meaning') in the evolution of *xiē*. Their development is therefore a case of degrammaticalisation, which results from the interaction between the original lexical semantics of *xiē* and the classifier schema.

8.2.4 Ch. 7: obsolescence

Focusing on obsolescence, the 'logical' endpoint of any development, Ch. 7 shows that schema loss can be multidimensional as well: both the substantive and the schematic can be implicated in the breakup of a schema. The analysis builds on the proposal in Construction Grammar (Goldberg 2006) that the most prototypical member of the schema builds up the schema and supplies it with meaning, and interprets change in prototypicality as a potential threat to the livelihood of a schema. Importantly, this analysis does not rest upon any distinction between what is 'early-stage' or 'late-stage', or what is 'primary' or 'secondary' grammaticalisation. The way the most prototypical member helps build up and maintain a schema's composition does not necessarily require the schema to be at any particular stage of development or any position on a lexico-grammatical continuum.

However, despite schema loss, the more substantive members of the adverse avertive schema have actually survived and evolved into new constructions. Therefore, following schema loss, there have actually been constructionalisations. These constructionalisations are not prototypical cases of grammaticalisation; they are what Breban (2016) calls 'extended grammaticalisation', in the sense that there is no syntactic category change (alternatively construed as change in inheritance from one schema to another in construction grammar), but semantic and/or pragmatic widening.

Chs. 4 and 5 look at cases where constructionlisation and grammaticalisation meets: the constructionalisations of [*bì* 'must' *p then q*] and [*fēi* 'unless' *p*, *bù* X] into [*bì* 'only if'*p*, *q*] and [*fēi* 'must' *p*] are grammaticalisations in the sense that both output constructions [*bì* 'only if'*p*, *q*] and [*fēi* 'must' *p*] are new form-meaning pairings with new grammatical meanings. The case of *xiē* in Ch. 6 is where constructionalisation and grammaticalisation do not meet: [*yi xiē* NP] and [*xiē* NP]$_{BARE}$ are new constructions under the classifier schema, following the realignment of [*xiē* NP]$_{QNT}$, yet no grammaticalisation (in the sense of the creation of a new grammatical marker) has happened; *xiē* has merely changed its category, whose behaviour can be predicted on the basis of its new category (i.e. the classifier schema). However, novel uses of *xiē* that means 'type; group' are where constructionalisation and degrammaticalisation meet. *Xiē* in these uses has come to have a more contentful semantics and is the result of the interaction between the original lexical semantics of *xiē* and the classifier schema. Ch. 7, examining loss from a multidimensional perspective, suggests that the relationship between constructionalisation and grammaticalisation with respect to loss is also not straightforward. Obsolescence may not necessarily intersect with constructionalisation or grammaticalisation; a schema may or may not obsolesced without any of its members undergoing any further change. In the case of the adverse avertive schema, the schema obsolesced with some of its members undergoing constructionalisation, but not grammaticalisation proper.

8.3 Towards a construction-specific and process-oriented view on language change

The analyses presented in the thesis suggest that directionality or important generalisation in language change is construction-specific. That is, neither directionality nor generalisation can be satisfactorily captured without referencing input and output constructions and the constructicon within which the constructions are found. This construction-specific view also stresses the importance of 'process' in language change, because, since no two constructicons

are identical— in fact, perhaps not even two individual speakers' constructicons may be identical (e.g. Dąbrowska 2012; for a historical view, Noël 2017)— universality or generalisation in language change may be found only in processes of change that apply between otherwise divergent and not easily comparable constructions. That is, as input and output constructions diverge between languages and even individuals of the same language, the most robust kind of generalisation in language change that can be hypothesised is the process of change.

This emphasis on construction-specificity and processes of change is not novel. The three parameters proposed by Traugott & Trousdale (2013), schematicity, productivity, and compositionality, shift the focus from 'source' and 'target' categories in grammaticalisation studies to processes of change that apply between constructions. Kranich (2015) also adopts a process-oriented view to interpret 'secondary grammaticalisation' (see Ch. 3). In typology, Cristofaro in various publications has also championed the importance of source constructions and their developmental processes, rather than resultant constructions and their distributions. For her, typological distributional evidence reflects diachronic processes of change, not necessarily mental representation (e.g. Cristofaro 2009, 2012, 2017, 2019), and strong typological universals are actually to be found in diachrony (for a similar position see Bybee 2008). Harris (2008) also states that what is rare in typology results from an uncommon combination of common developmental factors, so a seemingly crosslinguistically rare construction can be explained ultimately by (an accumulation of) processes of change. Even though not explicitly constructionalist in their chosen theoretical framework, but implicitly so in their outlook, Grossman & Polis (2018) also emphasise that generalisations are to be found in processes of change. Such processes may derive different qualitative results, some of which may seem unusual from a crosslinguistic perspective, but are well motivated within individual languages' constructicons. They draw their evidence from Ancient Egyptian-Coptic, which, despite the crosslinguistic preference for suffixing, has developed into a predominantly prefixing language, yet they maintain that "it is the *particular constellation* of structural features of the

language at a particular moment in time, together with *regular* mechanisms of language change, that give rise to the cross-linguistically unusual 'macro-preference' of the language" (Grossman & Polis 2018: 402; italics mine).

8.4 Conclusions and future directions

In conclusion, generalisations in language change are to be found in the interaction of processes of change and construction-specific factors, the former of which may be universal in the sense that they have general cognitive explanations and may happen in any language, given the right conditions. A brief review of the construction-specific and process-oriented generalisations proposed in this thesis is as follows, along with directions for future research.

First, the generalisation derived from bidirectional shifts between modality and conditionality is the performative bidirectionality prediction. It explicitly incorporates both the regular process of invited inferencing and the notion of language-specific constructicons. The prediction is motivated by both universality in communication (i.e. "the subjectivity of the speech event"; Traugott 2010: 55) and construction-specific properties (i.e. the constructicon of a language). Therefore, it can be applied crosslinguistically. Future work may uncover more cases of bidirectional shifts and refine or restrict the prediction. For example, certain performative meanings may play a more important role in bidirectional inferencing, and 'no consistently clear formal differentiation' (the precondition for bidirectional categorization) may be defined more explicitly.

Second, the generalisation derived from the case of *xiē* is the typology of reinforcement, especially its subtype, reinforcement by realignment. Reinforcement by realignment accounts for a subtype of analogically motivated neoanalysis that yields formally lengthened constructions that are not semantically different from their source constructions. It is a process with universal motivations in that different generations of speakers and/or the same speakers in different speech events may formally categorise semantically equivalent expressions differently. It is also a construction-specific process in that it references a schematic construction that has

already been established in a language, and therefore must be described and analysed on a case-by-case basis. Future research may use quantitative methods to predict under precisely what kind of condition reinforcement by realignment is more likely to happen (i.e. the degree of attraction between the source and target constructions).

Finally, the generalisation from the history of the averse avertive schema is the prototypicality-based account of obsolescence. It is construction-specific in that it models the relationships between a schema and its members, which, again, must be described specifically for any declining schema under investigation. It is process-oriented in that it focusses on schema formation (i.e. how speakers build schemas out of constructs) and universal in that schematisation is a feature of cognition. Obsolescence is inherently associated with a decline in frequency, at least at the token level. Therefore, future work may try to render this frequency-dependent account of obsolescence falsifiable by defining it independently of frequency.

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Corpora and databases

Corpora

Academia Sinica Balanced Corpus of Modern Chinese

http://asbc.iis.sinica.edu.tw/

Academia Sinica Tagged Corpus of Early Mandarin Chinese

http://lingcorpus.iis.sinica.edu.tw/early/

Academia Sinica Tagged Corpus of Middle Chinese

http://lingcorpus.iis.sinica.edu.tw/middle/

Academia Sinica Tagged Corpus of Old Chinese

http://lingcorpus.iis.sinica.edu.tw/ancient/

The Center for Chinese Linguistics (CCL) Corpus:

http://ccl.pku.edu.cn:8080/ccl_corpus/

Databases

Scripta Sinica

http://hanchi.ihp.sinica.edu.tw/

The Chinese Text Project

https://ctext.org/

The Dictionary of Chinese Character Variants

https://dict.variants.moe.edu.tw/

The International Encoded Han character and Variants Database

https://chardb.iis.sinica.edu.tw/

The Taan Ministry of Education Dictionary

http://dict.revised.moe.edu.tw/cbdic/